0059235

SAF-B00-030
100 F Area - Full Protocol
FINAL DATA PACKAGE

FAX RESULTS TO:

Mike Stankovich N/A
INITIAL/DATE

VERIFICATION OF CLIENT RECEIPT:

Phone or CC:Mail to Mike Stankovich N/A
INITIAL/DATE

COMPLETE COPY OF DATA PACKAGE TO:

Mike Stankovich X9-10 BS 2/5/03
INITIAL/DATE

Jeanette Duncan BS 2/5/03
INITIAL/DATE

COMMENTS: (PLEASE INCLUDE THE FOLLOWING ON THE FAX COVER SHEET)

SDG (H2024) SAF-B00-030

Rad only Chem only X Rad & Chem

X Complete Partial

Waste Site: 116-F-1

Data Package

Sample	SAF	SDG	Lab	Lab Received Date	Class	Final DP Received	Status
J00C01	B00-030	H2024	TMA	12/13/2002 10:00:00 AM	METALMULT	12/20/2002	Canceled/SDR
J00C01	B00-030	H2024	TMA	12/13/2002 10:00:00 AM	METALMULT	2/3/2003	Returned
J00C01	B00-030	H2024	TMA	12/13/2002 10:00:00 AM	METALSING	12/20/2002	Canceled/SDR
J00C01	B00-030	H2024	TMA	12/13/2002 10:00:00 AM	METALSING	2/3/2003	Returned
J00C01	B00-030	H2024	TMA	12/13/2002 10:00:00 AM	RAD	12/20/2002	Canceled/SDR
J00C01	B00-030	H2024	TMA	12/13/2002 10:00:00 AM	RAD	1/24/2003	Returned
J00C02	B00-030	H2024	TMA	12/13/2002 10:00:00 AM	METALMULT	12/20/2002	Canceled/SDR
J00C02	B00-030	H2024	TMA	12/13/2002 10:00:00 AM	METALMULT	2/3/2003	Returned
J00C02	B00-030	H2024	TMA	12/13/2002 10:00:00 AM	METALSING	12/20/2002	Canceled/SDR
J00C02	B00-030	H2024	TMA	12/13/2002 10:00:00 AM	METALSING	2/3/2003	Returned
J00C02	B00-030	H2024	TMA	12/13/2002 10:00:00 AM	RAD	12/20/2002	Canceled/SDR
J00C02	B00-030	H2024	TMA	12/13/2002 10:00:00 AM	RAD	1/24/2003	Returned
J00C03	B00-030	H2024	TMA	12/13/2002 10:00:00 AM	METALMULT	12/20/2002	Canceled/SDR
J00C03	B00-030	H2024	TMA	12/13/2002 10:00:00 AM	METALMULT	2/3/2003	Returned
J00C03	B00-030	H2024	TMA	12/13/2002 10:00:00 AM	METALSING	12/20/2002	Canceled/SDR
J00C03	B00-030	H2024	TMA	12/13/2002 10:00:00 AM	METALSING	2/3/2003	Returned

Sample	SAF	SDG	Lab	Lab Received Date	Class	Final DP Received	Status
J00C03	B00-030	H2024	TMA	12/13/2002 10:00:00 AM	RAD	12/20/2002	Canceled/SDR
J00C03	B00-030	H2024	TMA	12/13/2002 10:00:00 AM	RAD	1/24/2003	Returned
J00C04	B00-030	H2024	TMA	12/13/2002 10:00:00 AM	METALMULT	12/20/2002	Canceled/SDR
J00C04	B00-030	H2024	TMA	12/13/2002 10:00:00 AM	METALMULT	2/3/2003	Returned
J00C04	B00-030	H2024	TMA	12/13/2002 10:00:00 AM	METALSING	12/20/2002	Canceled/SDR
J00C04	B00-030	H2024	TMA	12/13/2002 10:00:00 AM	METALSING	2/3/2003	Returned
J00C04	B00-030	H2024	TMA	12/13/2002 10:00:00 AM	RAD	12/20/2002	Canceled/SDR
J00C04	B00-030	H2024	TMA	12/13/2002 10:00:00 AM	RAD	1/24/2003	Returned
J00C05	B00-030	H2024	TMA	12/13/2002 10:00:00 AM	METALMULT	12/20/2002	Canceled/SDR
J00C05	B00-030	H2024	TMA	12/13/2002 10:00:00 AM	METALMULT	2/3/2003	Returned
J00C05	B00-030	H2024	TMA	12/13/2002 10:00:00 AM	METALSING	12/20/2002	Canceled/SDR
J00C05	B00-030	H2024	TMA	12/13/2002 10:00:00 AM	METALSING	2/3/2003	Returned
J00C05	B00-030	H2024	TMA	12/13/2002 10:00:00 AM	RAD	12/20/2002	Canceled/SDR
J00C05	B00-030	H2024	TMA	12/13/2002 10:00:00 AM	RAD	1/24/2003	Returned
J00C06	B00-030	H2024	TMA	12/13/2002 10:00:00 AM	METALMULT	12/20/2002	Canceled/SDR
J00C06	B00-030	H2024	TMA	12/13/2002 10:00:00 AM	METALMULT	2/3/2003	Returned
J00C06	B00-030	H2024	TMA	12/13/2002 10:00:00 AM	METALSING	12/20/2002	Canceled/SDR

Sample	SAF	SDG	Lab	Lab Received Date	Class	Final DP Received	Status
J00C06	B00-030	H2024	TMA	12/13/2002 10:00:00 AM	METALSING	2/3/2003	Returned
J00C06	B00-030	H2024	TMA	12/13/2002 10:00:00 AM	RAD	12/20/2002	Canceled/SDR
J00C06	B00-030	H2024	TMA	12/13/2002 10:00:00 AM	RAD	1/24/2003	Returned
J00C07	B00-030	H2024	TMA	12/13/2002 10:00:00 AM	METALMULT	12/20/2002	Canceled/SDR
J00C07	B00-030	H2024	TMA	12/13/2002 10:00:00 AM	METALMULT	2/3/2003	Returned
J00C07	B00-030	H2024	TMA	12/13/2002 10:00:00 AM	METALSING	12/20/2002	Canceled/SDR
J00C07	B00-030	H2024	TMA	12/13/2002 10:00:00 AM	METALSING	2/3/2003	Returned
J00C07	B00-030	H2024	TMA	12/13/2002 10:00:00 AM	RAD	12/20/2002	Canceled/SDR
J00C07	B00-030	H2024	TMA	12/13/2002 10:00:00 AM	RAD	1/24/2003	Returned
J00C08	B00-030	H2024	TMA	12/13/2002 10:00:00 AM	METALMULT	12/20/2002	Canceled/SDR
J00C08	B00-030	H2024	TMA	12/13/2002 10:00:00 AM	METALMULT	2/3/2003	Returned
J00C08	B00-030	H2024	TMA	12/13/2002 10:00:00 AM	METALSING	12/20/2002	Canceled/SDR
J00C08	B00-030	H2024	TMA	12/13/2002 10:00:00 AM	METALSING	2/3/2003	Returned
J00C08	B00-030	H2024	TMA	12/13/2002 10:00:00 AM	RAD	12/20/2002	Canceled/SDR
J00C08	B00-030	H2024	TMA	12/13/2002 10:00:00 AM	RAD	1/24/2003	Returned
J00C09	B00-030	H2024	TMA	12/13/2002 10:00:00 AM	METALMULT	12/20/2002	Canceled/SDR
J00C09	B00-030	H2024	TMA	12/13/2002 10:00:00 AM	METALMULT	2/3/2003	Returned

Sample	SAF	SDG	Lab	Lab Received Date	Class	Final DP Received	Status
J00C09	B00-030	H2024	TMA	12/13/2002 10:00:00 AM	METALSING	12/20/2002	Canceled/SDR
J00C09	B00-030	H2024	TMA	12/13/2002 10:00:00 AM	METALSING	2/3/2003	Returned
J00C09	B00-030	H2024	TMA	12/13/2002 10:00:00 AM	RAD	12/20/2002	Canceled/SDR
J00C09	B00-030	H2024	TMA	12/13/2002 10:00:00 AM	RAD	1/24/2003	Returned
J00C10	B00-030	H2024	TMA	12/13/2002 10:00:00 AM	METALMULT	12/20/2002	Canceled/SDR
J00C10	B00-030	H2024	TMA	12/13/2002 10:00:00 AM	METALMULT	2/3/2003	Returned
J00C10	B00-030	H2024	TMA	12/13/2002 10:00:00 AM	METALSING	12/20/2002	Canceled/SDR
J00C10	B00-030	H2024	TMA	12/13/2002 10:00:00 AM	METALSING	2/3/2003	Returned
J00C10	B00-030	H2024	TMA	12/13/2002 10:00:00 AM	RAD	12/20/2002	Canceled/SDR
J00C10	B00-030	H2024	TMA	12/13/2002 10:00:00 AM	RAD	1/24/2003	Returned

LIONVILLE LABORATORY INC.

29 January 2003

Joan Kessner
Bechtel-Hanford, Inc.
3190 Washington Way
MSIN H9-03
Richland, WA 99352

Subject: Contract No. 630
Analytical Data Package

Dear Ms. Kessner:

Enclosed are the hard copy analytical reports for the batch number/fraction indicated (marked X) in the following table:

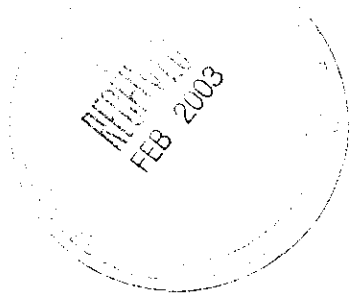
LvLI Batch #	0212L338
SDG #	H2024
SAF #	B00-030
Date Received	12-13-02
# Samples	10
Matrix	Soil
Volatiles	
Semivolatiles	
Pest/PCB	
DRO	
GRO	
Metals	X
Inorganics	X

The electronic data deliverable (EDD) will be emailed shortly. If you have any questions, please don't hesitate to contact me at (610) 280-3012.

Sincerely,
Lionville Laboratory Incorporated

Orlette S. Johnson
Project Manager

r:\group\pm\orlette\tnu-hanford\data\h_ltrs.doc



Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B00-030 H2024

DATE RECEIVED: 12/13/02 LVL LOT # :0212L338

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J00C01						
ARSENIC, TOTAL	001	S	02L0741	12/11/02	12/17/02	12/18/02
ARSENIC, TOTAL	001 REP	S	02L0741	12/11/02	12/17/02	12/18/02
ARSENIC, TOTAL	001 MS	S	02L0741	12/11/02	12/17/02	12/18/02
J00C02						
ARSENIC, TOTAL	002	S	02L0741	12/11/02	12/17/02	12/18/02
J00C03						
ARSENIC, TOTAL	003	S	02L0741	12/11/02	12/17/02	12/18/02
J00C04						
ARSENIC, TOTAL	004	S	02L0741	12/11/02	12/17/02	12/18/02
J00C05						
ARSENIC, TOTAL	005	S	02L0741	12/11/02	12/17/02	12/18/02
J00C06						
ARSENIC, TOTAL	006	S	02L0741	12/11/02	12/17/02	12/18/02
J00C07						
ARSENIC, TOTAL	007	S	02L0741	12/11/02	12/17/02	12/18/02
J00C08						
ARSENIC, TOTAL	008	S	02L0741	12/11/02	12/17/02	12/18/02
J00C09						
ARSENIC, TOTAL	009	S	02L0741	12/11/02	12/17/02	12/18/02

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B00-030 H2024

DATE RECEIVED: 12/13/02 LVL LOT # :0212L338

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J00C10						
ARSENIC, TOTAL	010	S	02L0741	12/11/02	12/17/02	12/18/02
LAB QC:						
ARSENIC LABORATORY	LC1 BS	S	02L0741	N/A	12/17/02	12/18/02
ARSENIC, TOTAL	MB1	S	02L0741	N/A	12/17/02	12/18/02

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD B00-030
LVL#: 0212L338
SDG/SAF#: H2024/B00-030

W.O.#: 11343-606-001-9999-00
Date Received: 12-13-02

METALS CASE NARRATIVE

1. This narrative covers the analyses of 10 soil samples.

2. The samples were prepared and analyzed in accordance with methods checked on the attached glossary.

3. All analyses were performed within the required holding times.

4. All results presented in this report are derived from samples that met LvLI's sample acceptance policy.

5. All Initial and Continuing Calibration Verifications (ICV/CCVs) were within the 90-110% control limits.

6. All Initial and Continuing Calibration Blanks (ICB/CCBs) were within control limits (less than the PQL).

7. The preparation/method blank (MB) was within method criteria {less than the Practical Quantitation Limit (3X the IDL), MB value less than 5% of the RCRA limit, or samples greater than 20X MB value}. Refer to the Inorganics Method Blank Data Summary.

8. All ICP Interference Check Standards were within control limits.

9. The laboratory control sample (LCS) was within the 80-120% control limits. Refer to the Inorganics Laboratory Control Standards Report.

10. The matrix spike (MS) recovery was within the 75-125% control limits. Refer to the Inorganics Accuracy Report.

11. The duplicate analysis was within the 20% Relative Percent Difference (RPD) control limits. Refer to the Inorganics Precision Report.

12. For the purposes of this report, the data has been reported to the Instrument Detection Limit (IDL). Values between the IDL and the Practical Quantitation Limit (PQL) are acquired in a region of less-certain quantification.

13. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard-copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

12-27-02
Date

gmb/m12-338

LVLI
LIONVILLE LABORATORY INC.

The following methods are used as reference for the digestion and analysis of samples contained within th

Lot#: 0212L338

Leaching Procedure: __1310 __1311 __1312 __Other:_____

CLP Metals __ Digestion and __ Analysis Methods: __ILM03.0 __ILM04.0

Metals Digestion Methods: __3005A __3010A __3015 __3020A ✓3050B __3051 __200.7 __SS17
__Other: _____

Metals Analysis Methods

	SW846	EPA	STD MTD	EPA OSWR	USATHAMA
Aluminum	__6010B	__200.7			__99
Antimony	__6010B __7041 [5]	__200.7 __204.2			__99
Arsenic	✓6010B __7060A [5]	__200.7 __206.2	__3113B		__99
Barium	__6010B	__200.7			__99
Beryllium	__6010B	__200.7			__99
Bismuth	__6010B [1]	__200.7 [1]		__1620	__99
Boron	__6010B	__200.7			__99
Cadmium	__6010B __7131A [5]	__200.7 __213.2			__99
Calcium	__6010B	__200.7			__99
Chromium	__6010B __7191 [5]	__200.7 __218.2			__SS17
Cobalt	__6010B	__200.7			__99
Copper	__6010B __7211 [5]	__200.7 __220.2			__99
Iron	__6010B	__200.7			__99
Lead	__6010B __7421 [5]	__200.7 __239.2	__3113B		__99
Lithium	__6010B __7430 [4]	__200.7		__1620	__99
Magnesium	__6010B	__200.7			__99
Manganese	__6010B	__200.7			__99
Mercury	__7470A [3] __7471A [3]	__245.1 [3] __245.5 [3]			__99
Molybdenum	__6010B	__200.7			__99
Nickel	__6010B	__200.7			__99
Potassium	__6010B __7610 [4]	__200.7 __258.1 [4]			__99
Rare Earths	__6010B [1]	__200.7 [1]		__1620	__99
Selenium	__6010B __7740 [5]	__200.7 __270.2	__3113B		__99
Silicon	__6010B [1]	__200.7		__1620	__99
Silica	__6010B	__200.7		__1620	__99
Silver	__6010B __7761 [5]	__200.7 __272.2			__99
Sodium	__6010B __7770 [4]	__200.7 __273.1 [4]			__99
Strontium	__6010B	__200.7			__99
Thallium	__6010B __7841 [5]	__200.7 __279.2 __200.9			__99
Tin	__6010B	__200.7			__99
Titanium	__6010B	__200.7			__99
Uranium	__6010B [1]	__200.7 [1]		__1620	__99
Vanadium	__6010B	__200.7			__99
Zinc	__6010B	__200.7			__99
Zirconium	__6010B [1]	__200.7 [1]		__1620	__99

Other:_____ Method:_____

METHOD REFERENCES AND DATA QUALIFIERS

DATA QUALIFIERS

U = Indicates that the parameter was not detected at or above the reported limit. The associated numerical value is the sample detection limit.

* = Indicates that the original sample result is greater than 4x the spike amount added.

ABBREVIATIONS

MB = Method or Preparation Blank.
MS = Matrix Spike.
MSD = Matrix Spike Duplicate.
REP = Sample Replicate
LCS = Laboratory Control Sample.
NC = Not calculated.

ANALYTICAL METAL METHODS

1. Not included in the method element list.

2. Modified Hg: Hg1 and Hg2 require less total volume of digestate due to the autosampler analysis. Sample volumes and reagents for mercury determinations in water and soil have been proportionately scaled down to adapt to this semi-automated technique. The sample volume used for water analysis is 33 mL. For soils, 0.1 grams of sample is taken to a final volume of 50 mL (including all reagents).

3. Modified Hg: Hg1 and Hg2 require less total volume of digestate due to the autosampler analysis. Sample volumes and reagents for mercury determinations in water and soil have been proportionately scaled down to adapt to this semi-automated technique. The sample volume used for water analysis is 33 mL. For soils, three 0.1 gram of sample is taken to a final volume of 50 mL (including all reagents).

4. Flame AA.

5. Graphite Furnace AA.

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 12/24/02

CLIENT: TNUHANFORD B00-030 H2024 LVL LOT #: 0212L338

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	J00C01	Arsenic, Total	3.3	MG/KG	0.40	1.0
-002	J00C02	Arsenic, Total	3.5	MG/KG	0.41	1.0
-003	J00C03	Arsenic, Total	3.6	MG/KG	0.40	1.0
-004	J00C04	Arsenic, Total	10.3	MG/KG	0.39	1.0
-005	J00C05	Arsenic, Total	15.9	MG/KG	0.40	1.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 12/24/02

CLIENT: TNUHANFORD B00-030 H2024 LVL LOT #: 0212L338

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-006	J00C06	Arsenic, Total	11.8	MG/KG	0.37	1.0
-007	J00C07	Arsenic, Total	10.1	MG/KG	0.38	1.0
-008	J00C08	Arsenic, Total	5.0	MG/KG	0.40	1.0
-009	J00C09	Arsenic, Total	3.5	MG/KG	0.39	1.0
-010	J00C10	Arsenic, Total	0.38 u	MG/KG	0.38	1.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 12/24/02

CLIENT: TNUHANFORD B00-030 H2024

LVL LOT #: 0212L338

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK1	02L0741-MB1	Arsenic, Total	0.38 u	MG/KG	0.38	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 12/24/02

CLIENT: TNUHANFORD B00-030 H2024

LVL LOT #: 0212L338

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	J00C01	Arsenic, Total	182	3.3	186	96.3	1.0

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 12/24/02

CLIENT: TNUHANFORD B00-030 H2024 LVL LOT #: 0212L338

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	J00C01	Arsenic, Total	3.3	3.4	3.0	1.0

Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 12/24/02

CLIENT: TNUHANFORD B00-030 H2024

LVL LOT #: 0212L338

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	02L0741-LC1	Arsenic, LCS	938	1000	MG/KG	93.8

(6) Metals DIG North

Lionville Laboratory Use Only

0212L338

Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

LVLI LIONVILLE LABORATORY, INC.

Client TMU Hanford B00-030

Est. Final Proj. Sampling Date

Project # 11343-606-001-9999-00

Project Contact/Phone #

Lionville Laboratory Project Manager Charlotte Johnson

QC SPEC Del STD TAT 21 days

Date Rec'd 12-13-02 Date Due 1-3-03

		A	B
Refrigerator #		5	5
#/Type Container	Liquid	1 poly	1 poly
	Solid		
Volume	Liquid	250	125
	Solid		
Preservatives		—	—

ANALYSES REQUESTED

ORGANIC: VOA | BNA | Pest/PCB | Herb

INORG: ICP Metal (As, Cr, Pb, Hg) | CN | Hex Chrom

Lionville Laboratory Use Only

MATRIX CODES: S - Soil; SE - Sediment; SO - Solid; SL - Sludge; W - Water; O - Oil; A - Air; DS - Drum Solids; DL - Drum Liquids; L - EP/TCLP Leachate; WI - Wipe; X - Other; F - Fish

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	As, Cr, Pb, Hg	ICr6
001	J00C01			S	12.11.02	0830	X	X
002	J00C02					0845	X	X
003	J00C03					0855	X	X
004	J00C04					0905	X	X
005	J00C05					0915	X	X
006	J00C06					0925	X	X
007	J00C07					0935	X	X
008	J00C08					0945	X	X
009	J00C09					0850	X	X
010	J00C10					0915	X	X

Special Instructions: SAF # B00-030

Run Matrix QC

DATE/REVISIONS:

12-23-02 1. Per Client - Cancel Cr, Hg, Pb

2.

3.

4.

5.

6.

Lionville Laboratory Use Only

Samples were: 1) Shipped ✓ or Hand Delivered ___ Airbill # 790160596017

2) Ambient or Chilled

3) Received in Good Condition (Y) or N

4) Samples Properly Preserved (Y) or N

5) Received Within Holding Times (Y) or N

Tamper Resistant Seal was: 1) Present on Outer Package (Y) or N; 2) Unbroken on Outer Package (Y) or N; 3) Present on Sample (Y) or N; 4) Unbroken on Sample (Y) or N

COC Record Present Upon Sample Rec't (Y) or N

Cooler Temp. 1.1 °C

Discrepancies Between Samples Labels and COC Record? Y or (N)

NOTES:

Relinquished by	Received by	Date	Time
[illegible]	[illegible]	12.13.02	0920

Relinquished by	Received by	Date	Time
COMPOSITE WASTE		ORIGINAL REWRITTEN	

13

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		B00-030-080	Page 1 of 2
Collector Stankovich/Mitchell	Company Contact Mike Stankovich	Telephone No. 531-7620	Project Coordinator TRENT, SJ	Price Code 8L Air Quality ☐	Data Turnaround 21 Days
Project Designation 100 F Area - Full Protocol	Sampling Location 116-F-1 Shallow Zone		SAF No. B00-030		
Ice Chest No. ERC 02-505	Field Logbook No. EL-1535-8	COA R116F12000	Method of Shipment FedEx		
Shipped To TMA/RECRA	Offsite Property No. F030 090		Bill of Lading/Air Bill No. 7901 6059 6017		

POSSIBLE SAMPLE HAZARDS/REMARKS

Radioactive Tie To B130Y9

Special Handling and/or Storage

Cool 4C

Preservation	None	Cool 4C	None	None						
Type of Container	aG	aG	P	aG						
No. of Container(s)	1	1	1	1						
Volume	250mL	125mL	1000mL	60mL						
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Chromium Hex - 7196	See item (2) in Special Instructions.	Strontium-89,90 – Total Sr; Nickel-63; Carbon-14						

12.12.02

Sample No.	Matrix *	Sample Date	Sample Time								
J00C01	SOIL	12-11-02	0830	✓	✓						
J00C02	SOIL	12-11-02	0845	✓	✓						
J00C03	SOIL	12-11-02	0855	✓	✓						
J00C04	SOIL	12-11-02	0905	✓	✓						
J00C05	SOIL	12-11-02	0915	✓	✓						

CHAIN OF POSSESSION	Sign/Print Names	
Relinquished By/Removed From MS Stankovich	Date/Time 1430 12-11-02	Received By/Stored In R Fahlberg	Date/Time 1430 12-11-02
Relinquished By/Removed From R Fahlberg	Date/Time 1430 12-11-02	Received By/Stored In West ice Cooler # ERC 02-404	Date/Time 1430 12-11-02
Relinquished By/Removed From ERC Cooler # 02-404	Date/Time 1000 12-12-02	Received By/Stored In R Fahlberg	Date/Time 1000 12-12-02
Relinquished By/Removed From ERC	Date/Time 1000 12-12-02	Received By/Stored In FedEx	Date/Time
Relinquished By/Removed From FedEx	Date/Time 12-13-02 0920	Received By/Stored In	Date/Time 12-13-02 0920
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010A (Supertrace) {Arsenic, Chromium, Lead}; Mercury - 7471 - (CV)
(2) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}

Matrix *
S=Soil
SE=Sediment
SO=Solid
SL=Sludge
W = Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
WI=Wipe
L=Liquid
V=Vegetation
X=Other

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

14

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		B00-030-080	Page 2 of 2
Collector Stankovich/Mitchell	Company Contact Mike Stankovich	Telephone No. 531-7620	Project Coordinator TRENT, SJ	Price Code 8L Air Quality ☐
Project Designation 100 F Area - Full Protocol	Sampling Location 116-F-1 Shallow Zone		SAF No. B00-030	Data Turnaround 21 Days
Ice Chest No. ERC 02-505	Field Logbook No. EL-1535-8	COA R116F12000	Method of Shipment FedEx	
Shipped To TMA/RECRA	Offsite Property No. A030090		Bill of Lading/Air Bill No. 7901 6059 6017	

POSSIBLE SAMPLE HAZARDS/REMARKS

Radioactive

TRCTO B13DV9

Special Handling and/or Storage

Cool 4°C

Preservation	None	Cool 4C	None	None						
Type of Container	aG	aG	P	aG						
No. of Container(s)	1	1	1	1						
Volume	250mL	125mL	1000mL	60mL						
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Chromium Hex - 7196	See item (2) in Special Instructions.	Strontium-89,90 -- Total Ur; Nickel-63; Carbon-14 12.12.02						

Sample No.	Matrix *	Sample Date	Sample Time								
J00C06	SOIL	12-11-02	0925	✓	✓						
J00C07	SOIL	12-11-02	0935	✓	✓						
J00C08	SOIL	12-11-02	0945	✓	✓						
J00C09	SOIL	12-11-02	0830	✓	✓						
J00C10	SOIL	12-11-02	0815	✓	✓						

CHAIN OF POSSESSION	Sign/Print Names	
Relinquished By/Removed From M Stankovich	Date/Time 1436 12-11-02	Received By/Stored In R. Fahlberg	Date/Time 1436 12-11-02
Relinquished By/Removed From R. Fahlberg	Date/Time 1438 12-11-02	Received By/Stored In Cooler # ERC02-404	Date/Time 1430 12-11-02
Relinquished By/Removed From ERC Cooler # 02-404	Date/Time 1000 12-12-02	Received By/Stored In R. Fahlberg	Date/Time 1000 12-12-02
Relinquished By/Removed From ERC R. Fahlberg	Date/Time 1000 12-12-02	Received By/Stored In Fed Ex	Date/Time
Relinquished By/Removed From Fed Ex	Date/Time 12-13-02 0920	Received By/Stored In	Date/Time 12-13-02 0920
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010A (Supertrace) {Arsenic, Chromium, Lead}; Mercury - 7471 - (CV)
(2) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}

Matrix *
S=Soil
SE=Sediment
SO=Solid
SI=Sludge
W = Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
WI=Wipe
L=Liquid
V=Vegetation
X=Other

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

BHI-EE-011 (03/01/2002)

LIONVILLE LABORATORY INCORPORATED
SAMPLE RECEIPT CHECKLIST

CLIENT: TMU Hanford

Purchase Order/Project:

DATE: 12-13-02

SAF# / SOW# / Release #: 800-030

Laboratory SDG #: 02121338

NOTE: ALL ENTRIES MARKED "NO" MUST BE EXPLAINED IN THE COMMENT SECTION

1.	Custody seals on coolers or shipping container intact, signed and dated?	☒ Yes	☐ No	☐ N/A	☐ see Comment #
2.	Outside of coolers or shipping containers are free from damage?	☒ Yes	☐ No	☐ N/A	☐ see Comment #
3.	Airbill # recorded?	☒ Yes	☐ No	☐ N/A	☐ see Comment #
4.	All expected paperwork received (coc and other client specific: historical data, alpha/beta or other screening data as applicable)? (paperwork sealed in plastic bag and taped to inside lid)	☒ Yes	☐ No	☐ N/A	☐ see Comment #
5.	Sample containers are intact?	☒ Yes	☐ No	☐ N/A	☐ see Comment #
6.	Custody seals on sample containers intact, signed and dated?	☒ Yes	☐ No	☐ N/A	☐ see Comment #
7.	All samples on coc received?	☒ Yes	☐ No	☐ N/A	☐ see Comment #
8.	All sample label information matches coc?	☒ Yes	☐ No	☐ N/A	☐ see Comment #
9.	Laboratory QC samples designated on coc? (QC stickers placed on bottles?)	☐ Yes	☐ No	☒ N/A	☐ see Comment #
10.	Shipment meets LvLI Sample Acceptance Policy? (identify all bottles not within policy. See reverse side for policy)	☒ Yes	☐ No	☐ N/A	☐ see Comment #
11.	Where applicable, bar code labels are affixed to coc?	☐ Yes	☐ No	☒ N/A	☐ see Comment #
12.	coc signed and dated?	☒ Yes	☐ No	☐ N/A	☐ see Comment #
13.	coc will be faxed or emailed to client?	☑ Yes	☐ No	☐ N/A	☐ see Comment #
14.	Project Manager/Client contacted concerning discrepancies? (name/date)	☐ Yes	☐ No	☒ N/A	☐ see Comment #

Cooler # / temp (°C) and Comments:

#ERC-02-505 / 1.1°C

Laboratory Sample Custodian: D. Ingram

Laboratory Project Manager:

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B00-030 H2024

DATE RECEIVED: 12/13/02 LVL LOT # :0212L338

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J00C01						
% SOLIDS	001	S	02L%S139	12/11/02	12/16/02	12/16/02
% SOLIDS	001 REP	S	02L%S139	12/11/02	12/16/02	12/16/02
CHROMIUM VI	001	S	03LVI002	12/11/02	01/08/03	01/09/03
CHROMIUM VI	001 REP	S	03LVI002	12/11/02	01/08/03	01/09/03
CHROMIUM VI	001 MS	S	03LVI002	12/11/02	01/08/03	01/09/03
CHROMIUM VI	001 MSD	S	03LVI002	12/11/02	01/08/03	01/09/03
J00C02						
% SOLIDS	002	S	02L%S139	12/11/02	12/16/02	12/16/02
CHROMIUM VI	002	S	03LVI002	12/11/02	01/08/03	01/09/03
J00C03						
% SOLIDS	003	S	02L%S139	12/11/02	12/16/02	12/16/02
CHROMIUM VI	003	S	03LVI002	12/11/02	01/08/03	01/09/03
J00C04						
% SOLIDS	004	S	02L%S139	12/11/02	12/16/02	12/16/02
CHROMIUM VI	004	S	03LVI002	12/11/02	01/08/03	01/09/03
J00C05						
% SOLIDS	005	S	02L%S139	12/11/02	12/16/02	12/16/02
CHROMIUM VI	005	S	03LVI002	12/11/02	01/08/03	01/09/03
J00C06						
% SOLIDS	006	S	02L%S139	12/11/02	12/16/02	12/16/02
CHROMIUM VI	006	S	03LVI002	12/11/02	01/08/03	01/09/03
J00C07						
% SOLIDS	007	S	02L%S139	12/11/02	12/16/02	12/16/02

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B00-030 H2024

DATE RECEIVED: 12/13/02 LVL LOT # :0212L338

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
CHROMIUM VI	007	S	03LVI002	12/11/02	01/08/03	01/09/03
J00C08						
% SOLIDS	008	S	02L%S139	12/11/02	12/16/02	12/16/02
CHROMIUM VI	008	S	03LVI002	12/11/02	01/08/03	01/09/03
J00C09						
% SOLIDS	009	S	02L%S139	12/11/02	12/16/02	12/16/02
CHROMIUM VI	009	S	03LVI002	12/11/02	01/08/03	01/09/03
J00C10						
% SOLIDS	010	S	02L%S139	12/11/02	12/16/02	12/16/02
CHROMIUM VI	010	S	03LVI002	12/11/02	01/08/03	01/09/03

LAB QC:

CHROMIUM VI	MB1	S	03LVI002	N/A	01/08/03	01/09/03
CHROMIUM VI	MB1 BS	S	03LVI002	N/A	01/08/03	01/09/03
CHROMIUM VI	MB1 BSD	S	03LVI002	N/A	01/08/03	01/09/03

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD B00-030 H2024
LVL#: 0212L338

W.O.#: 11343-606-001-9999-00
Date Received: 12-13-02

INORGANIC NARRATIVE

1. This narrative covers the analyses of 10 soil samples.

2. The samples were prepared and analyzed in accordance with the methods checked on the attached glossary.

3. Sample holding times as required by the method and/or contract were not met for Chromium VI due to several analysis events that yielded poor Laboratory Control Sample and matrix spike recoveries.

4. The results presented in this report are derived from samples that met LvLI's sample acceptance policy.

5. The method blank for Chromium VI was within the method criteria.

6. The Laboratory Control Samples (LCS) for Chromium VI were within the laboratory control limits.

7. The matrix spike recoveries for Chromium VI were within the 75-125% control limits.

8. The replicate analyses for Percent Solids and Chromium VI were within the 20% Relative Percent Difference (RPD) control limit.

9. Results for solid samples are reported on a dry weight basis.

10. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard copy package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.

Nicki J. Perrone

1-16-03

for Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

Date

njp\i12-338

The results presented in this report relate to the analytical testing and conditions of the samples upon receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 13 pages.

Lionville Laboratory Incorporated

WET CHEMISTRY

METHODS GLOSSARY FOR SOIL/SOLIDS SAMPLE ANALYSIS

	ASTM	SW846	OTHER
% Ash	__ D2216-80		
% Moisture	__ D2216-80		__ ILMO4.0 (e)
% Solids	✓ D2216-80		__ ILMO4.0 (e)
% Volatile Solids	__ D2216-80		
ASTM Extraction in Water	__ D3987-81/85		
BTU	__ D240-87		
CEC		✓ 9081	__ c
Chromium VI		✓ 3060A/7196A	
Corrosivity ___ by coupon ___ by pH		__ 1110(mod) __ 9045C	
Cyanide, Total		__ 9010B	__ ILMO4.0 (e)
Cyanide, Reactive		__ Section 7.3/9014	
Halides, Extractable Organic		__ 9020B	__ EPA 600/4/84-008
Halides, Total		__ 9020B	__ EPA 600/4/84-008
EP Toxicity		__ 1310A	
Flash Point		__ 1010	
Ignitability		__ 1010	
Oil & Grease		__ 9071A	
Carbon, Total Organic		__ 9060	__ Lloyd Kahn (mod)
Oxygen Bomb Prep for Anions	__ D240-87(mod)	__ 5050	
Petroleum Hydrocarbons, Total Recoverable		__ 9071	__ EPA 418.1
pH, Soil		__ 9045C	
Sulfide, Reactive		__ Section 7.3/9030B	
Sulfide		__ 9030B(mod)	
Specific Gravity	__ D1429-76C/	__ D5057-90	
Sulfur, Total		__ 9056	
Synthetic Preparation Leach		__ 1312	
Paint Filter		__ 9095A	
Other:	**Method:**		
Other:	**Method**		

Lionville Laboratory Incorporated

METHOD REFERENCES AND DATA QUALIFIERS

DATA QUALIFIERS

U = Indicates that the parameter was not detected at or above the reported limit. The associated numerical value is the sample detection limit.

* = Indicates that the original sample result is greater than 4x the spike amount added.

ABBREVIATIONS

MB = Method or Preparation Blank.
MS = Matrix Spike.
MSD = Matrix Spike Duplicate.
REP = Sample Replicate
LC = Laboratory Control Sample.
NC = Not calculated.

A suffix of -R, -S, or -T following these codes indicate a replicate, spike or sample duplicate analysis respectively.

ANALYTICAL WET CHEMISTRY METHODS

1. ASTM Standard Methods.

2. USEPA Methods for Chemical Analysis of Water and Wastes (USEPA 600/4-79-020).

3. Test Methods for Evaluating Solid Waste (USEPA SW-846).

a. Standard Methods for the Examination of Water and Waste, 16 ed, (1983).

b. Standard Methods for the Examination of Water and Waste, 17 ed, (1989)/18ed (1992).

c. Method of Soil Analysis, Part 1, Physical and Mineralogical Methods, 2nd ed, (1986).

d. Method of Soil Analysis, Part 2, Chemical and Microbiological Properties, Am. Soc. Agron., Madison, WI (1965).

e. USEPA Contract Laboratory Program, Statement of Work for Inorganic Analysis.

f. Code of Federal Regulations.

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 01/14/03

CLIENT: TNUHANPORD B00-030 H2024 LVL LOT #: 0212L338

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	J00C01	% Solids	92.7	%	0.01	1.0
		Chromium VI	0.43 u	MG/KG	0.43	1.0
-002	J00C02	% Solids	92.8	%	0.01	1.0
		Chromium VI	0.43 u	MG/KG	0.43	1.0
-003	J00C03	% Solids	93.5	%	0.01	1.0
		Chromium VI	4.4	MG/KG	0.42	1.0
-004	J00C04	% Solids	95.5	%	0.01	1.0
		Chromium VI	0.42 u	MG/KG	0.42	1.0
-005	J00C05	% Solids	93.0	%	0.01	1.0
		Chromium VI	0.42 u	MG/KG	0.42	1.0
-006	J00C06	% Solids	93.1	%	0.01	1.0
		Chromium VI	0.42 u	MG/KG	0.42	1.0
-007	J00C07	% Solids	92.4	%	0.01	1.0
		Chromium VI	0.42 u	MG/KG	0.42	1.0
-008	J00C08	% Solids	92.3	%	0.01	1.0
		Chromium VI	0.43 u	MG/KG	0.43	1.0
-009	J00C09	% Solids	93.3	%	0.01	1.0
		Chromium VI	0.42 u	MG/KG	0.42	1.0
-010	J00C10	% Solids	100	%	0.01	1.0
		Chromium VI	0.40 u	MG/KG	0.40	1.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 01/14/03

CLIENT: TNUHANFORD B00-030 H2024 LVL LOT #: 0212L338

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	03LVI002-MB1	Chromium VI	0.40 u	MG/KG	0.40	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 01/14/03

CLIENT: TNUHANFORD B00-030 H2024 LVL LOT #: 0212L338

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	J00C01	Soluble Chromium VI	4.8	0.43u	4.2	115.7	1.0
		Insoluble Chromium VI	1110	0.43u	1280	86.7	100
BLANK10	03LVI002-MB1	Soluble Chromium VI	4.1	0.40u	4.0	102.2	1.0
		Insoluble Chromium VI	1160	0.40u	1150	101.1	100

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 01/14/03

CLIENT: TNUHANFORD B00-030 H2024 LVL LOT #: 0212L338

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	J00C01	% Solids	92.7	93.7	1.1	1.0
		Chromium VI	0.43u	0.43u	NC	1.0

9

(6) Metals DIG N...

Lionville Laboratory Use Only

02121L338

Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: TMU Hanford B00-030

Est. Final Proj. Sampling Date:

Project #: 11343-606-001-9999-00

Project Contact/Phone #:

Lionville Laboratory Project Manager: Carlotta Johnson

QC: SPEC Del: STD TAT: 21 days

Date Rec'd: 12-13-02 Date Due: 1-3-03

	A	B
Refrigerator #	5	5
#/Type Container – Solid	1G	1oz G
Volume – Solid	250	125
Preservatives	—	—
ANALYSES REQUESTED	INORG: ICP Metal	Hex Chrome
Lionville Laboratory Use Only	As, Cr, Pb, Hg	ICR6

Organic: VOA, BNA, Pest/PCB, Herb. Inorg: ICP Metal, CN.

MATRIX CODES:
S - Soil
SE - Sediment
SO - Solid
SL - Sludge
W - Water
O - Oil
A - Air
DS - Drum Solids
DL - Drum Liquids
L - EP/TCLP Leachate
WI - Wipe
X - Other
F - Fish

Lab ID	Client ID/Description	MS	MSD	Matrix	Date Collected	Time Collected	ICP Metal (As, Cr, Pb, Hg)	Hex Chrome (ICR6)
001	J00C01			S	12-11-02	0835	X	X
002	J00C02					0845	X	X
003	J00C03					0855	X	X
004	J00C04					0905	X	X
005	J00C05					0915	X	X
006	J00C06					0925	X	X
007	J00C07					0935	X	X
008	J00C08					0945	X	X
009	J00C09					0830	X	X
010	J00C10					0915	X	X

Special Instructions: SAF # B00-030

Run Matrix QC

DATE/REVISIONS:
12-23-02 1. Per Client - Cancel Cr, Hg, Pb
2.
3.
4.
5.
6.

Lionville Laboratory Use Only

Samples were:
1) Shipped ✓ or Hand Delivered ___
Airbill # 790160596017
2) Ambient or (Chilled)
3) Received in Good Condition (Y) or N
4) Samples Properly Preserved (Y) or N
5) Received Within Holding Times (Y) or N

Tamper Resistant Seal was:
1) Present on Outer Package (Y) or N
2) Unbroken on Outer Package (Y) or N
3) Present on Sample (Y) or N
4) Unbroken on Sample (Y) or N
COC Record Present Upon Sample Rec't (Y) or N
Cooler Temp. 1.1 °C

Relinquished by	Received by	Date	Time
Fed Ex	D. [illegible]	12.13.02	0920

Relinquished by	Received by	Date	Time
COMPOSITE WASTE		ORIGINAL REWRITTEN	

Discrepancies Between Samples Labels and COC Record? Y or (N)
NOTES:

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B00-030-080	Page 1 of 2

Collector	Company Contact / Telephone No.	Project Coordinator	Price Code / Data Turnaround
Stankovich/Mitchell	Mike Stankovich 531-7620	TRENT, SJ	8L / 21 Days
Project Designation	**Sampling Location**	**SAF No.**	**Air Quality** ☐
100 F Area - Full Protocol	116-F-1 Shallow Zone	B00-030	
Ice Chest No.	**Field Logbook No.** / **COA**	**Method of Shipment**	
ERC 02-505	EL-1535-8 / R116F12000	FedEx	
Shipped To	**Offsite Property No.**	**Bill of Lading/Air Bill No.**	
TMA/RECRA	70830 090	7901 6059 6017	

POSSIBLE SAMPLE HAZARDS/REMARKS

Radioactive Tie To B13D19

Special Handling and/or Storage

Cool 4C

Preservation	None	Cool 4C	None	None							
Type of Container	aG	aG	P	aG							
No. of Container(s)	1	1	1	1							
Volume	250mL	125mL	1000mL	60mL							
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Chromium Hex - 7196	See item (2) in Special Instructions.	Strontium-89,90 -- Total Sr; Nickel-63; Carbon-14							

12.12.02

Sample No.	Matrix *	Sample Date	Sample Time								
J00C01	SOIL	12-11-02	0830	✓	✓						
J00C02	SOIL	12-11-02	0845	✓	✓						
J00C03	SOIL	12-11-02	0855	✓	✓						
J00C04	SOIL	12-11-02	0905	✓	✓						
J00C05	SOIL	12-11-02	0915	✓	✓						

CHAIN OF POSSESSION	Date/Time	Sign/Print Names: Received By/Stored In	Date/Time
Relinquished By/Removed From: M Stankovich	1430 12-11-02	Received By/Stored In: R Fahlberg	1430 12-11-02
Relinquished By/Removed From: R Fahlberg	1430 12-11-02	Received By/Stored In: West ice Cooler # ERC 02-404	1430 12-11-02
Relinquished By/Removed From: ERC Cooler # 02-404	1000 12-12-02	Received By/Stored In: R. Fahlberg R Fahlberg	1000 12-12-02
Relinquished By/Removed From: ERC R Fahlberg R Fahlberg	1000 12-12-02	Received By/Stored In: FedEx	
Relinquished By/Removed From: FedEx	12-13-02 0920	Received By/Stored In:	12-13-02 0920
Relinquished By/Removed From:		Received By/Stored In:	

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010A (Supertrace) {Arsenic, Chromium, Lead}; Mercury - 7471 - CV)
(2) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}

Matrix *
S=Soil
SE=Sediment
SO=Solid
SL=Sludge
W = Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
WI=Wipe
L=Liquid
V=Vegetation
X=Other

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		B00-030-080	Page 2 of 2
Collector Stankovich/Mitchell	Company Contact Mike Stankovich	Telephone No. 531-7620	Project Coordinator TRENT, SJ	Price Code 8L Air Quality ☐	Data Turnaround 21 Days
Project Designation 100 F Area - Full Protocol	Sampling Location 116-F-1 Shallow Zone		SAF No. B00-030		
Ice Chest No. ERC 02-505	Field Logbook No. EL-1535-8	COA R116F12000	Method of Shipment FedEx		
Shipped To TMA/RECRA	Offsite Property No. A030090		Bill of Lading/Air Bill No. 7901 6059 6017		

POSSIBLE SAMPLE HAZARDS/REMARKS

Radioactive

TicTo B13DV9

Special Handling and/or Storage

Cool 4°C

Preservation	None	Cool 4C	None	None							
Type of Container	aG	aG	P	aG							
No. of Container(s)	1	1	1	1							
Volume	250mL	125mL	1000mL	60mL							
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Chromium Hex - 7196	See item (2) in Special Instructions.	Strontium-89,90 – Total Sr; Nickel-63; Carbon-14 12-12-02							

Sample No.	Matrix *	Sample Date	Sample Time								
J00C06	SOIL	12-11-02	0925	✓	✓						
J00C07	SOIL	12-11-02	0935	✓	✓						
J00C08	SOIL	12-11-02	0945	✓	✓						
J00C09	SOIL	12-11-02	0830	✓	✓						
J00C10	SOIL	12-11-02	0815	✓	✓						

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From	Date/Time 1436 12-11-02	Received By/Stored In R. Fahlberg	Date/Time 1436 12-11-02
Relinquished By/Removed From R. Fahlberg	Date/Time 1430 12-11-02	Received By/Stored In Cooler #ERC02-504	Date/Time 1430 12-11-02
Relinquished By/Removed From ERC Cooler #02-404 12-12-02	Date/Time 1000	Received By/Stored In R. Fahlberg	Date/Time 1000 12-12-02
Relinquished By/Removed From ERC R. Fahlberg 12-12-02	Date/Time 1000	Received By/Stored In Fed Ex	Date/Time
Relinquished By/Removed From Fed Ex	Date/Time 12-13-02 0920	Received By/Stored In	Date/Time 12-13-02 0920
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010A (Supertrace) {Arsenic, Chromium, Lead}; Mercury - 7471 - (CV)
(2) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}

Matrix *
S=Soil
SD=Sediment
SO=Solid
SL=Sludge
W = Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
WI=Wipe
L=Liquid
V=Vegetation
X=Other

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

BHI-EE-011 (03/01/2002)

LIONVILLE LABORATORY INCORPORATED
SAMPLE RECEIPT CHECKLIST

CLIENT: TMU Hanford

Purchase Order/Project:

DATE: 12-13-02

SAF# / SOW# / Release #: 800-030

Laboratory SDG #: 0212L338

NOTE: ALL ENTRIES MARKED "NO" MUST BE EXPLAINED IN THE COMMENT SECTION

1.	Custody seals on coolers or shipping container intact, signed and dated?	☒ Yes	☐ No	☐ N/A	☐ see Comment #
2.	Outside of coolers or shipping containers are free from damage?	☒ Yes	☐ No	☐ N/A	☐ see Comment #
3.	Airbill # recorded?	☒ Yes	☐ No	☐ N/A	☐ see Comment #
4.	All expected paperwork received (coc and other client specific: historical data, alpha/beta or other screening data as applicable)? (paperwork sealed in plastic bag and taped to inside lid)	☒ Yes	☐ No	☐ N/A	☐ see Comment #
5.	Sample containers are intact?	☒ Yes	☐ No	☐ N/A	☐ see Comment #
6.	Custody seals on sample containers intact, signed and dated?	☒ Yes	☐ No	☐ N/A	☐ see Comment #
7.	All samples on coc received?	☒ Yes	☐ No	☐ N/A	☐ see Comment #
8.	All sample label information matches coc?	☒ Yes	☐ No	☐ N/A	☐ see Comment #
9.	Laboratory QC samples designated on coc? (QC stickers placed on bottles?)	☐ Yes	☐ No	☒ N/A	☐ see Comment #
10.	Shipment meets LvLI Sample Acceptance Policy? (identify all bottles not within policy. See reverse side for policy)	☒ Yes	☐ No	☐ N/A	☐ see Comment #
11.	Where applicable, bar code labels are affixed to coc?	☐ Yes	☐ No	☒ N/A	☐ see Comment #
12.	coc signed and dated?	☒ Yes	☐ No	☐ N/A	☐ see Comment #
13.	coc will be faxed or emailed to client?	☒ Yes	☐ No	☐ N/A	☐ see Comment #
14.	Project Manager/Client contacted concerning discrepancies? (name/date)	☐ Yes	☐ No	☒ N/A	☐ see Comment #

Cooler # / temp (°C) and Comments:

ERC-02-505 / 1.1°C

Laboratory Sample Custodian: D. Green

Laboratory Project Manager:

EBERLINE
SERVICES

January 22, 2003

Ms. Joan Kessner
Bechtel Hanford Inc.
3350 George Washington Way
Richland, WA 99352
MSIN: H0-025

Reference: **P.O. #630**
Eberline Services R2-12-103-7424, SDG H2024
R3-01-030

Dear Ms. Kessner:

Enclosed is the data report for ten solid samples designated under SAF No. B00-030 received at Eberline Services on December 13, 2002. The samples were analyzed according to the accompanying chain-of-custody documents.

Please call if you have any questions concerning this report.

Sincerely,

Melissa C. Mannion
Program Manager

MCM

Enclosure: Data Package

Analytical Services
2030 Wright Avenue
P.O. Box 4040
Richmond, California 94804-0040
(510) 235-2633 Fax (510) 235-0438
Toll Free (800) 841-5487
www.eberlineservices.com

1.0 GENERAL

Bechtel Hanford Inc. (BHI) Sample Delivery Group H2024 was composed of ten solid (soil) samples designated under SAF No. B00-030 with a Project Designation of: 100 F Area – Full Protocol.

The samples were received as stated on the Chain-of-Custody documents. Any discrepancies are noted on the Eberline Services Sample Receipt Checklist. The results were transmitted to BHI via e-fax on January 6 and 22, 2003.

2.0 ANALYSIS NOTES

2.1 Carbon-14 Analyses

No problems were encountered during the course of the analyses.

2.1 Gamma Spectroscopy Analyses

Gamma spectroscopy analysis was requested on the samples in SDG H2024 by BHI on January 9, 2003. No problems were encountered during the course of the analyses.

Case Narrative Certification Statement

"I certify that this data package is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed above. Release of the data obtained in this hard copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature."

Melissa C. Mannion — 1/22/03

Melissa C. Mannion
Program Manager

Date

E B E R L I N E S E R V I C E S / R I C H M O N D
SAMPLE DELIVERY GROUP H2024

SDG 7424
Contact Melissa C. Mannion

Client Hanford
Contract No. 630
Case no SDG_H2024

S U M M A R Y D A T A S E C T I O N

T A B L E O F C O N T E N T S

Melissa Mannion
Prepared by

Melissa Mannion
Reviewed by

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-TOC
Version 3.06
Report date 01/22/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2024

SDG 7424
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG_H2024

ABOUT THE DATA SUMMARY SECTION

The Data Summary Section of a Data Package has all data, in several useful orders, necessary for first level, routine review of the data package for a Sample Delivery Group (SDG). This section follows the Data Package Narrative, which has an overview of the data package and a discussion of special problems. It is followed by the Raw Data Section, which has full details.

The Data Summary Section has several groups of reports:

SAMPLE SUMMARIES

The Sample and QC Summary Reports show all samples, including QC samples, reported in one SDG. These reports cross-reference client and lab sample identifiers.

PREPARATION BATCH SUMMARY

The Preparation Batch Summary Report shows all preparation batches (lab groupings reflecting how work was organized) relevant to the reported SDG with information necessary to check the completeness and consistency of the SDG.

WORK SUMMARY

The Work Summary Report shows all samples and work done on them relevant to the reported SDG.

METHOD BLANKS

The Method Blank Reports, one for each Method Blank relevant to the SDG, show all results and primary supporting information for the blanks.

LAB CONTROL SAMPLES

The Lab Control Sample Reports, one for each Lab Control Sample relevant to the SDG, show all results, recoveries and primary supporting information for these QC samples.

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 01/22/03

SDG 7424
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
Contract No. 630
Case no SDG H2024

ABOUT THE DATA SUMMARY SECTION

DUPLICATES

The Duplicate Reports, one for each Duplicate and Original sample pair relevant to the SDG, show all results, differences and primary supporting information for these QC samples.

MATRIX SPIKES

The Matrix Spike Reports, one for each Spiked and Original sample pair relevant to the SDG, show all results, recoveries and primary supporting information for these QC samples.

DATA SHEETS

The Data Sheet Reports, one for each client sample in the SDG, show all results and primary supporting information for these samples.

METHOD SUMMARIES

The Method Summary Reports, one for each test used in the SDG, show all results, QC and method performance data for one analyte on one or two pages. (A test is a short code for the method used to do certain work to the client's specification.)

REPORT GUIDES

The Report Guides, one for each of the above groups of reports, have documentation on how to read the associated reports.

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 01/22/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2024

SAMPLE SUMMARY

SDG 7424
Contact Melissa C. Mannion

Client Hanford
Contract No. 630
Case no SDG H2024

CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	LAB SAMPLE ID	SAF NO	CHAIN OF CUSTODY	COLLECTED
J00C01	116-F-1 Shallow Zone	SOLID		R212103-01	B00-030	B00-030-080	12/11/02 08:30
J00C02	116-F-1 Shallow Zone	SOLID		R212103-02	B00-030	B00-030-080	12/11/02 08:45
J00C03	116-F-1 Shallow Zone	SOLID		R212103-03	B00-030	B00-030-080	12/11/02 08:55
J00C04	116-F-1 Shallow Zone	SOLID		R212103-04	B00-030	B00-030-080	12/11/02 09:05
J00C05	116-F-1 Shallow Zone	SOLID		R212103-05	B00-030	B00-030-080	12/11/02 09:15
J00C06	116-F-1 Shallow Zone	SOLID		R212103-06	B00-030	B00-030-080	12/11/02 09:25
J00C07	116-F-1 Shallow Zone	SOLID		R212103-07	B00-030	B00-030-080	12/11/02 09:35
J00C08	116-F-1 Shallow Zone	SOLID		R212103-08	B00-030	B00-030-080	12/11/02 09:45
J00C09	116-F-1 Shallow Zone	SOLID		R212103-09	B00-030	B00-030-080	12/11/02 08:30
J00C10	116-F-1 Shallow Zone	SOLID		R212103-10	B00-030	B00-030-080	12/11/02 08:15
Method Blank		SOLID		R212103-12	B00-030		
Method Blank		SOLID		R212103-15	B00-030		
Lab Control Sample		SOLID		R212103-11	B00-030		
Lab Control Sample		SOLID		R212103-14	B00-030		
Duplicate (R212103-02)	116-F-1 Shallow Zone	SOLID		R212103-13	B00-030		12/11/02 08:45
Duplicate (R212103-02)	116-F-1 Shallow Zone	SOLID		R212103-16	B00-030		12/11/02 08:45

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CS
Version 3.06
Report date 01/22/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2024

QC SUMMARY

SDG 7424
Contact Melissa C. Mannion

Client Hanford
Contract No. 630
Case no SDG H2024

QC BATCH	CHAIN OF CUSTODY	CLIENT SAMPLE ID	MATRIX	% SOLIDS	SAMPLE AMOUNT	BASIS AMOUNT	DAYS SINCE RECEIVED	DAYS SINCE COLL	LAB SAMPLE ID	DEPARTMENT SAMPLE ID
7424	B00-030-080	J00C01	SOLID	94.5	1586 g		12/13/02	2	R212103-01	7424-001
		J00C02	SOLID	92.5	1523 g		12/13/02	2	R212103-02	7424-002
		J00C03	SOLID	93.3	1465 g		12/13/02	2	R212103-03	7424-003
		J00C04	SOLID	95.3	1446 g		12/13/02	2	R212103-04	7424-004
		J00C05	SOLID	92.8	1662 g		12/13/02	2	R212103-05	7424-005
		J00C06	SOLID	92.9	1404 g		12/13/02	2	R212103-06	7424-006
		J00C07	SOLID	90.2	1343 g		12/13/02	2	R212103-07	7424-007
		J00C08	SOLID	92.2	1433 g		12/13/02	2	R212103-08	7424-008
		J00C09	SOLID	94.6	1578 g		12/13/02	2	R212103-09	7424-009
		J00C10	SOLID	100.0	1386 g		12/13/02	2	R212103-10	7424-010
		Method Blank	SOLID						R212103-12	7424-012
		Method Blank	SOLID						R212103-15	7424-015
		Lab Control Sample	SOLID						R212103-11	7424-011
		Lab Control Sample	SOLID						R212103-14	7424-014
		Duplicate (R212103-02)	SOLID	92.5	1523 g		12/13/02	2	R212103-13	7424-013
		Duplicate (R212103-02)	SOLID		1523 g		12/13/02	2	R212103-16	7424-016

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-QS
Version 3.06
Report date 01/22/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2024

SDG 7424
Contact Melissa C. Mannion

PREP BATCH SUMMARY

Client Hanford
Contract No. 630
Case no SDG H2024

TEST	MATRIX	METHOD	PREPARATION BATCH	ERROR 2σ %	PLANCHETS ANALYZED CLIENT	MORE	RE	BLANK	LCS	DUP/ORIG	MS/ORIG	QUALIFIERS
Gamma Spectroscopy												
GAM	SOLID	Gamma Scan	7052-196	15.0	10			1	1	1/1		
Liquid Scintillation Counting												
C	SOLID	Carbon 14 in Soil	7052-196	10.0	10			1	1	1/1		

Duplicates and Matrix Spikes are those with original (Client) sample in this Sample Delivery Group.
Blank and LCS planchets are those in the same preparation batch as some Client, Duplicate or Spike sample.

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-PBS
Version 3.06
Report date 01/22/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2024

WORK SUMMARY

SDG 7424
Contact Melissa C. Mannion

Client Hanford
Contract No. 630
Case no SDG H2024

CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
J00C01			R212103-01	7424-001	C		12/24/02	01/06/03	MCM	Carbon 14 in Soil
116-F-1 Shallow Zone		SOLID	12/11/02	7424-001	GAM		01/15/03	01/22/03	MCM	Gamma Scan
B00-030-080	B00-030		12/13/02							
J00C02			R212103-02	7424-002	C		12/25/02	01/06/03	MCM	Carbon 14 in Soil
116-F-1 Shallow Zone		SOLID	12/11/02	7424-002	GAM		01/14/03	01/22/03	MCM	Gamma Scan
B00-030-080	B00-030		12/13/02							
J00C03			R212103-03	7424-003	C		12/25/02	01/06/03	MCM	Carbon 14 in Soil
116-F-1 Shallow Zone		SOLID	12/11/02	7424-003	GAM		01/15/03	01/22/03	MCM	Gamma Scan
B00-030-080	B00-030		12/13/02							
J00C04			R212103-04	7424-004	C		12/25/02	01/06/03	MCM	Carbon 14 in Soil
116-F-1 Shallow Zone		SOLID	12/11/02	7424-004	GAM		01/15/03	01/22/03	MCM	Gamma Scan
B00-030-080	B00-030		12/13/02							
J00C05			R212103-05	7424-005	C		12/26/02	01/06/03	MCM	Carbon 14 in Soil
116-F-1 Shallow Zone		SOLID	12/11/02	7424-005	GAM		01/15/03	01/22/03	MCM	Gamma Scan
B00-030-080	B00-030		12/13/02							
J00C06			R212103-06	7424-006	C		12/26/02	01/06/03	MCM	Carbon 14 in Soil
116-F-1 Shallow Zone		SOLID	12/11/02	7424-006	GAM		01/15/03	01/22/03	MCM	Gamma Scan
B00-030-080	B00-030		12/13/02							
J00C07			R212103-07	7424-007	C		12/26/02	01/06/03	MCM	Carbon 14 in Soil
116-F-1 Shallow Zone		SOLID	12/11/02	7424-007	GAM		01/15/03	01/22/03	MCM	Gamma Scan
B00-030-080	B00-030		12/13/02							
J00C08			R212103-08	7424-008	C		12/26/02	01/06/03	MCM	Carbon 14 in Soil
116-F-1 Shallow Zone		SOLID	12/11/02	7424-008	GAM		01/15/03	01/22/03	MCM	Gamma Scan
B00-030-080	B00-030		12/13/02							
J00C09			R212103-09	7424-009	C		12/26/02	01/06/03	MCM	Carbon 14 in Soil
116-F-1 Shallow Zone		SOLID	12/11/02	7424-009	GAM		01/15/03	01/22/03	MCM	Gamma Scan
B00-030-080	B00-030		12/13/02							
J00C10			R212103-10	7424-010	C		12/26/02	01/06/03	MCM	Carbon 14 in Soil
116-F-1 Shallow Zone		SOLID	12/11/02	7424-010	GAM		01/15/03	01/22/03	MCM	Gamma Scan
B00-030-080	B00-030		12/13/02							

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CWS
Version 3.06
Report date 01/22/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2024

SDG 7424
Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford
Contract No. 630
Case no SDG H2024

CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
Method Blank	B00-030	SOLID	R212103-12	7424-012	C		12/24/02	01/06/03	MCM	Carbon 14 in Soil
Method Blank	B00-030	SOLID	R212103-15	7424-015	GAM		01/15/03	01/22/03	MCM	Gamma Scan
Lab Control Sample	B00-030	SOLID	R212103-11	7424-011	C		12/26/02	01/06/03	MCM	Carbon 14 in Soil
Lab Control Sample	B00-030	SOLID	R212103-14	7424-014	GAM		01/15/03	01/22/03	MCM	Gamma Scan
Duplicate (R212103-02) 116-F-1 Shallow Zone	B00-030	SOLID	R212103-13 12/11/02 12/13/02	7424-013	C		12/25/02	01/06/03	MCM	Carbon 14 in Soil
Duplicate (R212103-02) 116-F-1 Shallow Zone	B00-030	SOLID	R212103-16 12/11/02 12/13/02	7424-016	GAM		01/15/03	01/22/03	MCM	Gamma Scan

COUNTS OF TESTS BY SAMPLE TYPE

TEST	SAF No	METHOD	REFERENCE	CLIENT	MORE	RE	BLANK	LCS	DUP	SPIKE	TOTAL
C	B00-030	Carbon 14 in Soil	C14_COX_LSC	10			1	1	1		13
GAM	B00-030	Gamma Scan	GAMMA_GS	10			1	1	1		13
TOTALS				20			2	2	2		26

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CWS
Version 3.06
Report date 01/22/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2024

R212103-12 **Method Blank**

METHOD BLANK

SDG	7424	Client/Case no	Hanford SDG H2024
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R212103-12	Client sample id	Method Blank
Dept sample id	7424-012	Material/Matrix	SOLID
		SAF No	B00-030

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Carbon 14	14762-75-5	0.551	1.3	2.1	50	U	C

100 F Area - Full Protocol

QC-BLANK 43463

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-DS
Version 3.06
Report date 01/22/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2024

R212103-15 **Method Blank**

METHOD BLANK

SDG	7424	Client/Case no	Hanford SDG H2024
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R212103-15	Client sample id	Method Blank
Dept sample id	7424-015	Material/Matrix	SOLID
		SAF No	B00-030

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALIFIERS	TEST
Potassium 40	13966-00-2	U		0.36		U	GAM
Cobalt 60	10198-40-0	U		0.021	0.050	U	GAM
Cesium 137	10045-97-3	U		0.018	0.10	U	GAM
Radium 226	13982-63-3	U		0.038		U	GAM
Radium 228	15262-20-1	U		0.098		U	GAM
Europium 152	14683-23-9	U		0.052	0.10	U	GAM
Europium 154	15585-10-1	U		0.065	0.10	U	GAM
Europium 155	14391-16-3	U		0.062	0.10	U	GAM
Thorium 228	14274-82-9	U		0.028		U	GAM
Thorium 232	TH-232	U		0.098		U	GAM
Uranium 235	15117-96-1	U		0.087		U	GAM
Uranium 238	U-238	U		2.3		U	GAM
Americium 241	14596-10-2	U		0.12		U	GAM

100 F Area - Full Protocol

QC-BLANK 43601

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-DS
Version 3.06
Report date 01/22/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2024

R212103-11

Lab Control Sample

LAB CONTROL SAMPLE

SDG 7424
Contact Melissa C. Mannion

Client/Case no Hanford SDG H2024
Contract No. 630

Lab sample id R212103-11
Dept sample id 7424-011

Client sample id Lab Control Sample
Material/Matrix SOLID
SAF No B00-030

ANALYTE	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST	ADDED pCi/g	2σ ERR pCi/g	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS
Carbon 14	2210	45	11	50		C	2280	91	97	84-116	80-120

100 F Area - Full Protocol

QC-LCS 43462

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LCS
Version 3.06
Report date 01/22/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2024

R212103-14

Lab Control Sample

LAB CONTROL SAMPLE

SDG 7424
Contact Melissa C. Mannion

Client/Case no Hanford SDG H2024
Contract No. 630

Lab sample id R212103-14
Dept sample id 7424-014

Client sample id Lab Control Sample
Material/Matrix SOLID
SAF No B00-030

ANALYTE	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST	ADDED pCi/g	2σ ERR pCi/g	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS
Cobalt 60	0.392	0.036	0.018	0.050		GAM	0.444	0.018	88	76-124	80-120
Cesium 137	0.425	0.032	0.022	0.10		GAM	0.428	0.017	99	74-126	80-120

100 F Area - Full Protocol

QC-LCS 43600

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LCS
Version 3.06
Report date 01/22/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2024

R212103-13 J00C02

DUPLICATE

SDG	7424			Client/Case no	Hanford SDG H2024
Contact	Melissa C. Mannion			Contract	No. 630
	DUPLICATE		ORIGINAL		
Lab sample id	R212103-13	Lab sample id	R212103-02	Client sample id	J00C02
Dept sample id	7424-013	Dept sample id	7424-002	Location/Matrix	116-F-1 Shallow Zone SOLID
		Received	12/13/02	Collected/Weight	12/11/02 08:45 1523 g
% solids	92.5	% solids	92.5	Custody/SAF No	B00-030-080 B00-030

ANALYTE	DUPLICATE pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST	ORIGINAL pCi/g	2σ ERR (COUNT)	MDA pCi/g	QUALI-FIERS	RPD %	3σ PROT TOT LIMIT
Carbon 14	-0.381	0.99	1.7	50	U	C	0.166	1.1	1.8	U	-	

100 F Area - Full Protocol

QC-DUP#2 43464

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-DUP
Version 3.06
Report date 01/22/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2024

R212103-16 J00C02

DUPLICATE

SDG 7424 Client/Case no Hanford SDG H2024
Contact Melissa C. Mannion Contract No. 630

DUPLICATE ORIGINAL

Lab sample id R212103-16 Lab sample id R212103-02 Client sample id J00C02
Dept sample id 7424-016 Dept sample id 7424-002 Location/Matrix 116-F-1 Shallow Zone SOLID
Received 12/13/02 Collected/Weight 12/11/02 08:45 1523 g
% solids 92.5 Custody/SAF No B00-030-080 B00-030

ANALYTE	DUPLICATE pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST	ORIGINAL pCi/g	2σ ERR (COUNT)	MDA pCi/g	QUALI-FIERS	RPD %	3σ PROT TOT LIMIT
Potassium 40	15.3	0.70	0.34			GAM	16.3	0.92	0.31		6	34
Cobalt 60	U		0.037	0.050	U	GAM	U		0.049	U	-	
Cesium 137	U		0.074	0.10	U	GAM	U		0.045	U	-	
Radium 226	0.611	0.072	0.068			GAM	0.659	0.090	0.084		8	42
Radium 228	0.936	0.18	0.15			GAM	1.05	0.20	0.19		11	52
Europium 152	U		0.084	0.10	U	GAM	U		0.11	U	-	
Europium 154	U		0.13	0.10	U	GAM	U		0.16	U	-	
Europium 155	U		0.11	0.10	U	GAM	U		0.14	U	-	
Thorium 228	0.889	0.045	0.041			GAM	0.849	0.056	0.057		5	34
Thorium 232	0.936	0.18	0.15			GAM	1.05	0.20	0.19		11	52
Uranium 235	U		0.14		U	GAM	U		0.19	U	-	
Uranium 238	U		4.4		U	GAM	U		5.8	U	-	
Americium 241	U		0.12		U	GAM	U		0.30	U	-	

100 F Area - Full Protocol

QC-DUP#2 43602

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-DUP
Version 3.06
Report date 01/22/03

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2024

R212103-01 **J00C01**

DATA SHEET

SDG	7424	Client/Case no	Hanford SDG_H2024
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R212103-01	Client sample id	J00C01
Dept sample id	7424-001	Location/Matrix	116-F-1 Shallow Zone SOLID
Received	12/13/02	Collected/Weight	12/11/02 08:30 1586 g
% solids	94.5	Custody/SAF No	B00-030-080 B00-030

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Carbon 14	14762-75-5	-0.757	1.2	2.0	50	U	C
Potassium 40	13966-00-2	16.4	0.95	0.38			GAM
Cobalt 60	10198-40-0	U		0.047	0.050	U	GAM
Cesium 137	10045-97-3	U		0.044	0.10	U	GAM
Radium 226	13982-63-3	0.624	0.079	0.071			GAM
Radium 228	15262-20-1	1.01	0.20	0.18			GAM
Europium 152	14683-23-9	U		0.11	0.10	U	GAM
Europium 154	15585-10-1	U		0.17	0.10	U	GAM
Europium 155	14391-16-3	U		0.13	0.10	U	GAM
Thorium 228	14274-82-9	0.839	0.054	0.050			GAM
Thorium 232	TH-232	1.01	0.20	0.18			GAM
Uranium 235	15117-96-1	U		0.18		U	GAM
Uranium 238	U-238	U		5.2		U	GAM
Americium 241	14596-10-2	U		0.30		U	GAM

100 F Area - Full Protocol

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	01/22/03

D A T A S H E E T

SDG	7424	Client/Case no	Hanford SDG H2024
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R212103-02	Client sample id	J00C02
Dept sample id	7424-002	Location/Matrix	116-F-1 Shallow Zone SOLID
Received	12/13/02	Collected/Weight	12/11/02 08:45 1523 g
% solids	92.5	Custody/SAF No	B00-030-080 B00-030

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Carbon 14	14762-75-5	0.166	1.1	1.8	50	U	C
Potassium 40	13966-00-2	16.3	0.92	0.31			GAM
Cobalt 60	10198-40-0	U		0.049	0.050	U	GAM
Cesium 137	10045-97-3	U		0.045	0.10	U	GAM
Radium 226	13982-63-3	0.659	0.090	0.084			GAM
Radium 228	15262-20-1	1.05	0.20	0.19			GAM
Europium 152	14683-23-9	U		0.11	0.10	U	GAM
Europium 154	15585-10-1	U		0.16	0.10	U	GAM
Europium 155	14391-16-3	U		0.14	0.10	U	GAM
Thorium 228	14274-82-9	0.849	0.056	0.057			GAM
Thorium 232	TH-232	1.05	0.20	0.19			GAM
Uranium 235	15117-96-1	U		0.19		U	GAM
Uranium 238	U-238	U		5.8		U	GAM
Americium 241	14596-10-2	U		0.30		U	GAM

100 F Area - Full Protocol

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
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Version	3.06
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EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2024

R212103-03 **J00C03**

DATA SHEET

SDG	7424	Client/Case no	Hanford SDG H2024
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R212103-03	Client sample id	J00C03
Dept sample id	7424-003	Location/Matrix	116-F-1 Shallow Zone SOLID
Received	12/13/02	Collected/Weight	12/11/02 08:55 1465 g
% solids	93.3	Custody/SAF No	B00-030-080 B00-030

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Carbon 14	14762-75-5	0.412	1.1	1.9	50	U	C
Potassium 40	13966-00-2	15.0	0.78	0.35			GAM
Cobalt 60	10198-40-0	U		0.040	0.050	U	GAM
Cesium 137	10045-97-3	U		0.039	0.10	U	GAM
Radium 226	13982-63-3	0.562	0.069	0.061			GAM
Radium 228	15262-20-1	0.972	0.17	0.16			GAM
Europium 152	14683-23-9	U		0.090	0.10	U	GAM
Europium 154	15585-10-1	U		0.14	0.10	U	GAM
Europium 155	14391-16-3	U		0.093	0.10	U	GAM
Thorium 228	14274-82-9	0.816	0.046	0.042			GAM
Thorium 232	TH-232	0.972	0.17	0.16			GAM
Uranium 235	15117-96-1	U		0.15		U	GAM
Uranium 238	U-238	U		4.3		U	GAM
Americium 241	14596-10-2	U		0.12		U	GAM

100 F Area - Full Protocol

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	01/22/03

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2024

R212103-04 **J00C04**

DATA SHEET

SDG	7424	Client/Case no	Hanford SDG H2024
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R212103-04	Client sample id	J00C04
Dept sample id	7424-004	Location/Matrix	116-F-1 Shallow Zone SOLID
Received	12/13/02	Collected/Weight	12/11/02 09:05 1446 g
% solids	95.3	Custody/SAF No	B00-030-080 B00-030

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALIFIERS	TEST
Carbon 14	14762-75-5	0.081	1.1	1.8	50	U	C
Potassium 40	13966-00-2	16.4	0.99	0.46			GAM
Cobalt 60	10198-40-0	U		0.048	0.050	U	GAM
Cesium 137	10045-97-3	U		0.053	0.10	U	GAM
Radium 226	13982-63-3	0.637	0.083	0.076			GAM
Radium 228	15262-20-1	1.02	0.20	0.18			GAM
Europium 152	14683-23-9	U		0.11	0.10	U	GAM
Europium 154	15585-10-1	U		0.15	0.10	U	GAM
Europium 155	14391-16-3	U		0.13	0.10	U	GAM
Thorium 228	14274-82-9	0.824	0.054	0.051			GAM
Thorium 232	TH-232	1.02	0.20	0.18			GAM
Uranium 235	15117-96-1	U		0.19		U	GAM
Uranium 238	U-238	U		5.2		U	GAM
Americium 241	14596-10-2	U		0.31		U	GAM

100 F Area - Full Protocol

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
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Version	3.06
Report date	01/22/03

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2024

R212103-05 **J00C05**

DATA SHEET

SDG	7424	Client/Case no	Hanford	SDG H2024	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R212103-05	Client sample id	J00C05		
Dept sample id	7424-005	Location/Matrix	116-F-1 Shallow Zone	SOLID	
Received	12/13/02	Collected/Weight	12/11/02 09:15	1662 g	
% solids	92.8	Custody/SAF No	B00-030-080	B00-030	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Carbon 14	14762-75-5	-1.02	1.4	2.9	50	U	C
Potassium 40	13966-00-2	16.7	1.1	0.36			GAM
Cobalt 60	10198-40-0	U		0.041	0.050	U	GAM
Cesium 137	10045-97-3	U		0.040	0.10	U	GAM
Radium 226	13982-63-3	0.584	0.076	0.068			GAM
Radium 228	15262-20-1	0.983	0.18	0.17			GAM
Europium 152	14683-23-9	U		0.087	0.10	U	GAM
Europium 154	15585-10-1	U		0.14	0.10	U	GAM
Europium 155	14391-16-3	U		0.081	0.10	U	GAM
Thorium 228	14274-82-9	0.809	0.049	0.043			GAM
Thorium 232	TH-232	0.983	0.18	0.17			GAM
Uranium 235	15117-96-1	U		0.13		U	GAM
Uranium 238	U-238	U		4.4		U	GAM
Americium 241	14596-10-2	U		0.051		U	GAM

100 F Area - Full Protocol

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	01/22/03

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2024

R212103-06 **J00C06**

DATA SHEET

SDG	7424	Client/Case no	Hanford	SDG H2024	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R212103-06	Client sample id	J00C06		
Dept sample id	7424-006	Location/Matrix	116-F-1 Shallow Zone	SOLID	
Received	12/13/02	Collected/Weight	12/11/02 09:25	1404 g	
% solids	92.9	Custody/SAF No	B00-030-080	B00-030	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Carbon 14	14762-75-5	-0.113	1.7	3.4	50	U	C
Potassium 40	13966-00-2	15.8	0.78	0.34			GAM
Cobalt 60	10198-40-0	U		0.039	0.050	U	GAM
Cesium 137	10045-97-3	U		0.061	0.10	U	GAM
Radium 226	13982-63-3	0.552	0.062	0.057			GAM
Radium 228	15262-20-1	0.765	0.18	0.16			GAM
Europium 152	14683-23-9	U		0.090	0.10	U	GAM
Europium 154	15585-10-1	U		0.14	0.10	U	GAM
Europium 155	14391-16-3	U		0.10	0.10	U	GAM
Thorium 228	14274-82-9	0.788	0.046	0.043			GAM
Thorium 232	TH-232	0.765	0.18	0.16			GAM
Uranium 235	15117-96-1	U		0.14		U	GAM
Uranium 238	U-238	U		4.2		U	GAM
Americium 241	14596-10-2	U		0.12		U	GAM

100 F Area - Full Protocol

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	01/22/03

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2024

R212103-07 **J00C07**

DATA SHEET

SDG	7424	Client/Case no	Hanford SDG H2024
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R212103-07	Client sample id	J00C07
Dept sample id	7424-007	Location/Matrix	116-F-1 Shallow Zone SOLID
Received	12/13/02	Collected/Weight	12/11/02 09:35 1343 g
% solids	90.2	Custody/SAF No	B00-030-080 B00-030

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Carbon 14	14762-75-5	2.30	1.8	3.5	50	U	C
Potassium 40	13966-00-2	17.2	1.1	0.50			GAM
Cobalt 60	10198-40-0	U		0.057	0.050	U	GAM
Cesium 137	10045-97-3	U		0.054	0.10	U	GAM
Radium 226	13982-63-3	0.764	0.097	0.087			GAM
Radium 228	15262-20-1	1.13	0.22	0.19			GAM
Europium 152	14683-23-9	U		0.11	0.10	U	GAM
Europium 154	15585-10-1	U		0.20	0.10	U	GAM
Europium 155	14391-16-3	U		0.15	0.10	U	GAM
Thorium 228	14274-82-9	0.962	0.063	0.061			GAM
Thorium 232	TH-232	1.13	0.22	0.19			GAM
Uranium 235	15117-96-1	U		0.21		U	GAM
Uranium 238	U-238	U		5.9		U	GAM
Americium 241	14596-10-2	U		0.35		U	GAM

100 F Area - Full Protocol

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	01/22/03

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2024

R212103-08 **J00C08**

DATA SHEET

SDG	7424	Client/Case no	Hanford	SDG H2024
Contact	Melissa C. Mannion	Contract	No. 630	
Lab sample id	R212103-08	Client sample id	J00C08	
Dept sample id	7424-008	Location/Matrix	116-F-1 Shallow Zone	SOLID
Received	12/13/02	Collected/Weight	12/11/02 09:45	1433 g
% solids	92.2	Custody/SAF No	B00-030-080	B00-030

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Carbon 14	14762-75-5	-1.15	1.6	3.3	50	U	C
Potassium 40	13966-00-2	15.3	1.0	0.37			GAM
Cobalt 60	10198-40-0	U		0.040	0.050	U	GAM
Cesium 137	10045-97-3	U		0.039	0.10	U	GAM
Radium 226	13982-63-3	0.680	0.080	0.070			GAM
Radium 228	15262-20-1	1.02	0.18	0.17			GAM
Europium 152	14683-23-9	U		0.085	0.10	U	GAM
Europium 154	15585-10-1	U		0.12	0.10	U	GAM
Europium 155	14391-16-3	U		0.081	0.10	U	GAM
Thorium 228	14274-82-9	0.958	0.049	0.041			GAM
Thorium 232	TH-232	1.02	0.18	0.17			GAM
Uranium 235	15117-96-1	U		0.13		U	GAM
Uranium 238	U-238	U		4.5		U	GAM
Americium 241	14596-10-2	U		0.052		U	GAM

100 F Area - Full Protocol

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	01/22/03

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2024

R212103-09 **J00C09**

DATA SHEET

SDG	7424	Client/Case no	Hanford		SDG H2024
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R212103-09	Client sample id	J00C09		
Dept sample id	7424-009	Location/Matrix	116-F-1 Shallow Zone		SOLID
Received	12/13/02	Collected/Weight	12/11/02 08:30	1578 g	
% solids	94.6	Custody/SAF No	B00-030-080	B00-030	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Carbon 14	14762-75-5	-0.625	1.4	2.9	50	U	C
Potassium 40	13966-00-2	16.7	0.90	0.40			GAM
Cobalt 60	10198-40-0	U		0.043	0.050	U	GAM
Cesium 137	10045-97-3	U		0.041	0.10	U	GAM
Radium 226	13982-63-3	0.664	0.086	0.081			GAM
Radium 228	15262-20-1	1.08	0.20	0.19			GAM
Europium 152	14683-23-9	U		0.099	0.10	U	GAM
Europium 154	15585-10-1	U		0.14	0.10	U	GAM
Europium 155	14391-16-3	U		0.13	0.10	U	GAM
Thorium 228	14274-82-9	0.902	0.052	0.050			GAM
Thorium 232	TH-232	1.08	0.20	0.19			GAM
Uranium 235	15117-96-1	U		0.17		U	GAM
Uranium 238	U-238	U		4.7		U	GAM
Americium 241	14596-10-2	U		0.27		U	GAM

100 F Area - Full Protocol

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
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EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2024

R212103-10 **J00C10**

DATA SHEET

SDG	7424	Client/Case no	Hanford SDG H2024
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R212103-10	Client sample id	J00C10
Dept sample id	7424-010	Location/Matrix	116-F-1 Shallow Zone SOLID
Received	12/13/02	Collected/Weight	12/11/02 08:15 1386 g
% solids	100.0	Custody/SAF No	B00-030-080 B00-030

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Carbon 14	14762-75-5	-1.34	1.3	2.8	50	U	C
Potassium 40	13966-00-2	6.17	0.64	0.16			GAM
Cobalt 60	10198-40-0	U		0.019	0.050	U	GAM
Cesium 137	10045-97-3	U		0.019	0.10	U	GAM
Radium 226	13982-63-3	0.096	0.036	0.039			GAM
Radium 228	15262-20-1	0.230	0.077	0.076			GAM
Europium 152	14683-23-9	U		0.044	0.10	U	GAM
Europium 154	15585-10-1	U		0.064	0.10	U	GAM
Europium 155	14391-16-3	U		0.037	0.10	U	GAM
Thorium 228	14274-82-9	0.171	0.022	0.021			GAM
Thorium 232	TH-232	0.230	0.077	0.076			GAM
Uranium 235	15117-96-1	U		0.060		U	GAM
Uranium 238	U-238	U		2.4		U	GAM
Americium 241	14596-10-2	U		0.024		U	GAM

100 F Area - Full Protocol

Lab id	EBRLNE
Protocol	Hanford
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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2024

Test GAM Matrix SOLID
SDG 7424
Contact Melissa C. Mannion

METHOD SUMMARY

GAMMA SCAN
GAMMA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H2024

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Cobalt 60	Cesium 137
Preparation batch 7052-196						
J00C01	R212103-01			7424-001	U	U
J00C02	R212103-02			7424-002	U	U
J00C03	R212103-03			7424-003	U	U
J00C04	R212103-04			7424-004	U	U
J00C05	R212103-05			7424-005	U	U
J00C06	R212103-06			7424-006	U	U
J00C07	R212103-07			7424-007	U	U
J00C08	R212103-08			7424-008	U	U
J00C09	R212103-09			7424-009	U	U
J00C10	R212103-10			7424-010	U	U
BLK (QC ID=43601)	R212103-15			7424-015	U	U
LCS (QC ID=43600)	R212103-14			7424-014	ok	ok
Duplicate (R212103-02)	R212103-16			7424-016	- U	- U
Nominal values and limits from method				RDLs (pCi/g)	0.050	0.10
100 F Area - Full Protocol						

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2024

Test GAM Matrix SOLID
SDG 7424
Contact Melissa C. Mannion

METHOD SUMMARY

GAMMA SCAN

GAMMA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H2024

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7052-196 2σ prep error 15.0 % Reference Lab Notebook 7052 pg. 196																
J00C01	R212103-01			0.35	757					100			35	01/13/03	01/15	MB,05,00
J00C02	R212103-02			0.38	668					111			34	01/13/03	01/14	MB,05,00
J00C03	R212103-03			0.30	673					101			35	01/13/03	01/15	02,04,00
J00C04	R212103-04			0.37	749					101			35	01/13/03	01/15	MB,05,00
J00C05	R212103-05			0.30	616					101			35	01/13/03	01/15	MB,07,00
J00C06	R212103-06			0.31	683					102			35	01/13/03	01/15	02,04,00
J00C07	R212103-07			0.44	601					103			35	01/13/03	01/15	MB,05,00
J00C08	R212103-08			0.30	640					103			35	01/13/03	01/15	MB,07,00
J00C09	R212103-09			0.33	642					141			35	01/13/03	01/15	MB,05,00
J00C10	R212103-10			0.15	824					141			35	01/13/03	01/15	MB,07,00
BLK (QC ID=43601)	R212103-15			0.17	601					115				01/13/03	01/15	MB,05,00
LCS (QC ID=43600)	R212103-14			0.018	601					140				01/13/03	01/15	01,04,00
Duplicate (R212103-02) (QC ID=43602)	R212103-16			0.29	668					115			35	01/13/03	01/15	02,04,00
Nominal values and limits from method				0.050	601					100			180			

PROCEDURES	REFERENCE	GAMMA_GS
	CP-060	Soil Preparation, rev 4
	CP-100	Ge(Li) Preparation for Commercial Samples, rev 5

AVERAGES ± 2 SD	MDA	0.29	± 0.22
FOR 13 SAMPLES	YIELD		±

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SAMPLE DELIVERY GROUP H2024

Test C Matrix SOLID
SDG 7424
Contact Melissa C. Mannion

METHOD SUMMARY

CARBON 14 IN SOIL
LIQUID SCINTILLATION COUNTING

Client Hanford
Contract No. 630
Contract SDG H2024

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Carbon 14	
Preparation batch 7052-196						
J00C01	R212103-01			7424-001	U	
J00C02	R212103-02			7424-002	U	
J00C03	R212103-03			7424-003	U	
J00C04	R212103-04			7424-004	U	
J00C05	R212103-05			7424-005	U	
J00C06	R212103-06			7424-006	U	
J00C07	R212103-07			7424-007	U	
J00C08	R212103-08			7424-008	U	
J00C09	R212103-09			7424-009	U	
J00C10	R212103-10			7424-010	U	
BLK (QC ID=43463)	R212103-12			7424-012	U	
LCS (QC ID=43462)	R212103-11			7424-011	ok	
Duplicate (R212103-02)	R212103-13			7424-013	-	U

Nominal values and limits from method — RDLs (pCi/g) 50
100 F Area - Full Protocol

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2024

Test C Matrix SOLID
SDG 7424
Contact Melissa C. Mannion

METHOD SUMMARY

CARBON 14 IN SOIL
LIQUID SCINTILLATION COUNTING

Client Hanford
Contract No. 630
Contract SDG H2024

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7052-196	2σ prep error 10.0 %	Reference Lab Notebook 7052 pg. 196														
J00C01	R212103-01			2.0	0.283			100		300			13	12/24/02	12/24	LSC-004
J00C02	R212103-02			1.8	0.318			100		300			14	12/24/02	12/25	LSC-004
J00C03	R212103-03			1.9	0.304			100		300			14	12/24/02	12/25	LSC-004
J00C04	R212103-04			1.8	0.323			100		300			14	12/24/02	12/25	LSC-004
J00C05	R212103-05			2.9	0.357			100		100			15	12/24/02	12/26	LSC-004
J00C06	R212103-06			3.4	0.292			100		100			15	12/24/02	12/26	LSC-004
J00C07	R212103-07			3.5	0.280			100		100			15	12/24/02	12/26	LSC-004
J00C08	R212103-08			3.3	0.296			100		100			15	12/24/02	12/26	LSC-004
J00C09	R212103-09			2.9	0.353			100		100			15	12/24/02	12/26	LSC-004
J00C10	R212103-10			2.8	0.359			100		100			15	12/24/02	12/26	LSC-004
BLK (QC ID=43463)	R212103-12			2.1	0.280			100		300				12/24/02	12/24	LSC-004
LCS (QC ID=43462)	R212103-11			11	0.280			100		10				12/24/02	12/26	LSC-004
Duplicate (R212103-02) (QC ID=43464)	R212103-13			1.7	0.342			100		300			14	12/24/02	12/25	LSC-004
Nominal values and limits from method				50	0.265					50			180			

PROCEDURES REFERENCE C14_COX_LSC
CP-251 Tritium/Carbon-14 Oxidation, rev 5

AVERAGES ± 2 SD FOR 13 SAMPLES
MDA 3.2 ± 4.9
YIELD 100 ± 0

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SAMPLE SUMMARY

The Sample and QC Summary Reports show all samples, including QC samples, reported in one Sample Delivery Group (SDG).

The Sample Summary Report fully identifies client samples and gives the corresponding lab sample identification. The QC Summary Report shows at the sample level how the lab organized the samples into batches and generated QC samples. The Preparation Batch and Method Summary Reports show this at the analysis level.

The following notes apply to these reports:

* LAB SAMPLE ID is the lab's primary identification for a sample.

* DEPARTMENT SAMPLE ID is an alternate lab id, for example one assigned by a radiochemistry department in a lab.

* CLIENT SAMPLE ID is the client's primary identification for a sample. It includes any sample preparation done by the client that is necessary to identify the sample.

* QC BATCH is a lab assigned code that groups samples to be processed and QCed together. These samples should have similar matrices.

  QC BATCH is not necessarily the same as SDG, which reflects samples received and reported together.

* All Lab Control Samples, Method Blanks, Duplicates and Matrix Spikes are shown that QC any of the samples. Due to possible reanalyses, not all results for all these QC samples may be relevant to the SDG. The Lab Control Sample, Method Blank, Duplicate, Matrix Spike and Method Summary Reports detail these relationships.

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PREPARATION BATCH SUMMARY

The Preparation Batch Summary Report shows all preparation batches in one Sample Delivery Group (SDG) with information necessary to check the completeness and consistency of the SDG.

The following notes apply to this report:

* The preparation batches are shown in the same order as the Method Summary Reports are printed.

* Only analyses of planchets relevant to the SDG are included.

* Each preparation batch should have at least one Method Blank and LCS in it to validate client sample results.

* The QUALIFIERS shown are all qualifiers other than U, J, B, L and H that occur on any analysis in the preparation batch. The Method Summary Report has these qualifiers on a per sample basis.

  These qualifiers should be reviewed as follows:

  X Some data has been manually entered or modified. Transcription errors are possible.

  P One or more results are 'preliminary'. The data is not ready for final reporting.

  2 There were two or more results for one analyte on one planchet imported at one time. The results in DVD may not be the same as on the raw data sheets.

  Other lab defined qualifiers may occur. In general, these should be addressed in the SDG narrative.

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WORK SUMMARY

The Work Summary Report shows all samples, including QC samples, and all relevant analyses in one Sample Delivery Group (SDG). This report is often useful as supporting documentation for an invoice.

The following notes apply to this report:

* TEST is a code for the method used to measure associated analytes. Results and related information for each analyte are on the Data Sheet Report. In special cases, a test code used in the summary data section is not the same as in associated raw data. In this case, both codes are shown on the Work Summary.

* SUFFIX is the lab's code to distinguish multiple analyses (recounts, reworks, reanalyses) of a fraction of the sample. The suffix indicates which result is being reported. An empty suffix normally identifies the first attempt to analyze the sample.

* The LAB SAMPLE ID, TEST and SUFFIX uniquely identify all supporting data for a result. The Method Summary Report for each TEST has method performance data, such as yield, for each lab sample id and suffix and procedures used in the method.

* PLANCHET is an alternate lab identifier for work done for one test. It, combined with the TEST and SUFFIX, may be the best link to raw data.

* For QC samples, only analyses that directly QC some regular sample are shown. The Lab Control Sample, Method Blank, Duplicate, Matrix Spike and Method Summary Reports detail these relationships.

* The SAS (Special Analytical Services) Number is a client or lab assigned code that reflects special processing for samples, such as rapid turn around. Counts of tests done are lists by SAS number since it is likely to affect prices.

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DATA SHEET

The Data Sheet Report shows all results and primary supporting information for one client sample or Method Blank. This report corresponds to both the CLP Inorganics and Organics Data Sheet.

The following notes apply to this report:

* TEST is a code for the method used to measure an analyte. If the TEST is empty, no data is available; the analyte was not analyzed for.

* The LAB SAMPLE ID and TEST uniquely identify work within the Summary Data Section of a Data Package. The Work Summary and Method Summary Reports further identify raw data that underlies this work.

  The Method Summary Report for each TEST has method performance data, such as yield, for each Lab Sample ID and a list of procedures used in the method.

* ERRORs can be labeled TOTAL or COUNT. TOTAL implies a preparation (non-counting method) error has been added, as square root of sum of squares, to the counting error denoted by COUNT. The preparation errors, which may vary by preparation batch, are shown on the Method Summary Report.

* A RESULT can be 'N.R.' (Not Reported). This means the lab did this work but chooses not to report it now, possibly because it was reported at another time.

* When reporting a Method Blank, a RESULT can be 'N.A.' (Not Applicable). This means there is no reported client sample work in the same preparation batch as the Blank's result. This is likely to occur when the Method Blank is associated with reanalyses of selected work for a few samples in the SDG.

The following qualifiers are defined by the DVD system:

U The RESULT is less than the MDA (Minimum Detectable Activity).

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DATA SHEET

If the MDA is blank, the ERROR is used as the limit.

J The RESULT is less than the RDL (Required Detection Limit) and no U qualifier is assigned.

B A Method Blank associated with this sample had a result without a U flag and, after correcting for possibly different aliquots, that result is greater than or equal to the MDA for this sample.

Normally, B is not assigned if U is. When method blank subtraction is shown on this report, B flags are assigned based on the unsubtracted values while U's are assigned based on the subtracted ones. Both flags can be assigned in this case.

For each sample result, all Method Blank results in the same preparation batch are compared. The Method Summary Report documents this and other QC relationships.

L Some Lab Control Sample that QC's this sample had a low recovery. The lab can disable assignment of this qualifier.

H Similar to 'L' except the recovery was high.

P The RESULT is 'preliminary'.

X Some data necessary to compute the RESULT, ERROR or MDA was manually entered or modified.

2 There were two or more results available for this analyte. The reported result may not be the same as in the raw data.

Other qualifiers are lab defined. Definitions should be in the SDG narrative.

The following values are underlined to indicate possible problems:

* An MDA is underlined if it is bigger than its RDL.

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DATA SHEET

* An ERROR is underlined if the 1.645 sigma counting error is bigger than both the MDA and the RESULT, implying that the MDA may not be a good estimate of the 'real' minimum detectable activity.

* A negative RESULT is underlined if it is less than the negative of its 2 sigma counting ERROR.

* When reporting a Method Blank, a RESULT is underlined if greater than its MDA. If the MDA is blank, the 2 sigma counting error is used in the comparison.

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LAB CONTROL SAMPLE

The Lab Control Sample Report shows all results, recoveries and primary supporting information for one Lab Control Sample.

The following notes apply to this report:

* All fields in common with the Data Sheet Report have similar usage. Refer to its Report Guide for details.

* An amount ADDED is the lab's value for the actual amount spiked into this sample with its ERROR an estimate of the error of this amount.

  An amount added is underlined if its ratio to the corresponding RDL is outside protocol specified limits.

* REC (Recovery) is RESULT divided by ADDED expressed as a percent.

* The first, computed limits for the recovery reflect:

  1. The error of RESULT, including that introduced by rounding the result prior to printing.

     If the limits are labeled (TOTAL), they include preparation error in the result. If labeled (COUNT), they do not.

  2. The error of ADDED.

  3. A lab specified, per analyte bias. The bias changes the center of the computed limits.

* The second limits are protocol defined upper and lower QC limits for the recovery.

* The recovery is underlined if it is outside either of these ranges.

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DUPLICATE

The Duplicate Report shows all results, differences and primary supporting information for one Duplicate and associated Original sample.

The following notes apply to this report:

* All fields in common with the Data Sheet Report have similar usage. This applies both to the Duplicate and Original sample data. Refer to the Data Sheet Report Guide for details.

  If the Duplicate has data for a TEST and the lab did not do this test to the Original, the Original's RESULTs are underlined.

* The RPD (Relative Percent Difference) is the absolute value of the difference of the RESULTs divided by their average expressed as a percent.

  If both RESULTs are less than their MDAs, no RPD is computed and a '-' is printed.

  For an analyte, if the lab did work for both samples but has data for only one, the MDA from the sample with data is used as the other's result in the RPD.

* The first, computed limit is the sum, as square root of sum of squares, of the errors of the results divided by the average result as a percent, hence the relative error of the difference rather than the error of the relative difference. The errors include those introduced by rounding the RESULTs prior to printing.

  If this limit is labeled TOT, it includes the preparation error in the RESULTs. If labeled CNT, it does not.

  This value reported for this limit is at most 999.

* The second limit for the RPD is the larger of:

  1. A fixed percentage specified in the protocol.

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DUPLICATE

2. A protocol factor (typically 2) times the average MDA as a percent of the average result. This limit applies when the results are close to the MDAs.

* The RPD is underlined if it is greater than either limit.

* If specified by the lab, the second limit column is replaced by the Difference Error Ratio (DER), which is the absolute value of the difference of the results divided by the quadratic sum of their one sigma errors, the same errors as used in the first limit.

  Except for differences due to rounding, the DER is the same as the RPD divided by the first RPD limit with the limit scaled to 1 sigma.

* The DER is underlined if it is greater than the sigma factor, typically 2 or 3, shown in the header for the first RPD limit.

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MATRIX SPIKE

The Matrix Spike Report shows all results, recoveries and primary supporting information for one Matrix Spike and associated Original sample.

The following notes apply to this report:

* All fields in common with the Data Sheet Report have similar usage. This applies both to the Spiked and Original sample data. Refer to the Data Sheet Report Guide for details.

  If the Spike has data for a TEST and the lab did not do this test to the Original, the Original's RESULTs are underlined.

* An amount ADDED is the lab's value for the actual amount spiked into the Spike sample with its ERROR an estimate of the error of this amount.

  An amount is underlined if its ratio to the corresponding RDL is outside protocol specified limits.

* REC (Recovery) is the Spike RESULT minus the Original RESULT divided by ADDED expressed as a percent.

* The first, computed limits for the recovery reflect:

  1. The errors of the two RESULTs, including those introduced by rounding them prior to printing.

     If the limits are labeled (TOTAL), they include preparation error in the result. If labeled (COUNT), they do not.

  2. The error of ADDED.

  3. A lab specified, per analyte bias. The bias changes the center of the computed limits.

* The second limits are protocol defined upper and lower QC limits

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MATRIX SPIKE

for the recovery.

These limits are left blank if the Original RESULT is more than a protocol defined factor (typically 4) times ADDED. This is a way of accounting for that when the spike is small compared to the amount in the original sample, the recovery is unreliable.

* The recovery is underlined (out of spec) if it is outside either of these ranges.

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METHOD SUMMARY

The Method Summary Report has two tables. One shows up to five results measured using one method. The other has performance data for the method. There is one report for each TEST, as used on the Data Sheet Report.

The following notes apply to this report:

* Each table is subdivided into sections, one for each preparation batch. A preparation batch is a group of aliquots prepared at roughly the same time in one work area of the lab using the same method.

  There should be Lab Control Sample and Method Blank results in each preparation batch since this close correspondence makes the QC meaningful. Depending on lab policy, Duplicates need not occur in each batch since they QC sample dependencies such as matrix effects.

* The RAW TEST column shows the test code used in the raw data to identify a particular analysis if it is different than the test code in the header of the report. This occurs in special cases due to method specific details about how the lab labels work.

  The Lab Sample or Planchet ID combined with the (Raw) Test Code and Suffix uniquely identify the raw data for each analysis.

* If a result is less than both its MDA and RDL, it is replaced by just 'U' on this report. If it is greater than or equal to the RDL but less than the MDA, the result is shown with a 'U' flag.

  The J and X flags are as on the data sheet.

* Non-U results for Method Blanks are underlined to indicate possible contamination of other samples in the preparation batch. The Method Blank Report has supporting data.

* Lab Control Sample and Matrix Spike results are shown as: ok, No data, LOW or HIGH, with the last two underlined. 'No data'

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means no amount ADDED was specified. 'LOW' and 'HIGH' correspond to when the recovery is underlined on the Lab Control Sample or Matrix Spike Report. See these reports for supporting data.

* Duplicate sample results are shown as: ok, No data, or OUT, with the last two underlined. 'No data' means there was no original sample data found for this duplicate. 'OUT' corresponds to when the RPD is underlined on the Duplicate Report. See this report for supporting data.

* If the MDA column is labeled 'MAX MDA', there was more than one result measured by the reported method and the MDA shown is the largest MDA. If not all these results have the same RDL, the MAX MDA reflects only those results with RDL equal to the smallest one.

  MDAs are underlined if greater than the printed RDL.

* Aliquots are underlined if less than the nominal value specified for the method.

* Prepareation factors are underlined if greater than the nominal value specified for the method.

* Dilution factors are underlined if greater than the nominal value specified for the method.

* Residues are underlined if outside the range specified for the method. Residues are not printed if yields are.

* Yields, which may be gravimetric, radiometric or some type of recovery depending on the method, are underlined if outside the range specified for the method.

* Efficiencies are underlined if outside the range specified for the method. Efficiencies are detector and geometry dependent so this test is only approximate.

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* Count times are underlined if less than the nominal value specified for the method.

* Resolutions (as FWHM; Full Width at Half Max) are underlined if greater than the method specified limit.

* Tracer drifts are underlined if their absolute values are greater than the method specified limit. Tracer drifts are not printed if percent moistures are.

* Days Held are underlined if greater than the holding time specified in the protocol.

* Analysis dates are underlined if before their planchet's preparation date or, if a limit is specified, too far after it.

For some methods, ratios as percentages and error estimates for them are computed for pairs of results. A ratio column header like '1÷3' means the ratio of the first result column and the third result column.

Ratios are not computed for Lab Control Sample, Method Blank or Matrix Spike results since their matrices are not necessarily similar to client samples'.

The error estimate for a ratio of results from one planchet reflects only counting errors since other errors should be correlated. For a ratio involving different planchets, if QC limits are computed based on total errors, the error for the ratio allows for the preparation errors for the planchets.

The ratio is underlined (out of spec) if the absolute value of its difference from the nominal value is greater than its error estimate. If no nominal value is specified, this test is not done.

For Gross Alpha or Gross Beta results, there may be a column showing the sum of other Alpha or Beta emitters. This sum includes all relevant

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results in the DVD database, whether reported or not. Results in the sum are weighted by a particles/decay value specified by the lab for each relevant analyte. Results less than their MDA are not included. No sums are computed for Lab Control, Method Blank or Matrix Spike samples since their various planchets may not be physically related.

If a ratio of total isotopic to Gross Alpha or Beta is shown, the error for the ratio reflects both the error in the Gross result and the sum, as square root of sum of squares, of the errors in the isotopic results.

For total elemental uranium or thorium results, there may be a column showing the total weight computed from associated isotopic results. Ignoring results less than their MDAs, this is a weighted sum of the isotopic results. The weights depend on the molecular weight and half-life of each isotope so as to convert activities (decays) to weight (atoms).

If a ratio of total computed to measured elemental uranium or thorium is shown, the error for the ratio reflects the errors in all the measurements.

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Report date 01/22/03

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		B00-030-080	Page 1 of 2
Collector: Stankovich/Mitchell	Company Contact: Mike Stankovich	Telephone No.: 531-7620	Project Coordinator: TRENT, SJ	Price Code: 8L
Project Designation: 100 F Area - Full Protocol	Sampling Location: 116-F-1 Shallow Zone H2024 (7424)		SAF No.: B00-030	Air Quality ☐
Ice Chest No.: ERC 96-036	Field Logbook No.: EL-1535-8	COA: R116F12000	Method of Shipment: FedEx	Data Turnaround: 21 Days
Shipped To: TMA/RECRA	Offsite Property No.: B030 075		Bill of Lading/Air Bill No.: 7912 5265 6083	

POSSIBLE SAMPLE HAZARDS/REMARKS

Radioactive TicTo B13DV9

Special Handling and/or Storage

None

Preservation	None	Cool 4C	None	None							
Type of Container	aG	aG	P	aG							
No. of Container(s)	1	1	1	1							
Volume	250mL	125mL	1000mL	60mL							
SAMPLE ANALYSIS	See item (1) in Special Instructions. RK	Chromium Hex - 7196 12-12-02	See item (2) in Special Instructions.	~~Strontium-89,90 - Total Sr, Nickel-63,~~ Carbon-14	MM 12/27/3						
Sample No.	Matrix *	Sample Date	Sample Time								
J00C01	SOIL	12-11-02	0830			✓	✓				
J00C02	SOIL	12-11-02	0845			✓	✓				
J00C03	SOIL	12-11-02	0855			✓	✓				
J00C04	SOIL	12-11-02	0905			✓	✓				
J00C05	SOIL	12-11-02	0915			✓	✓				

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From: MSTANKOVICH	Date/Time: 12-11-02 1430	Received By/Stored In: R. Fuller R. Fahlberg	Date/Time: 12-11-02 1430
Relinquished By/Removed From: R. Fuller R. Fahlberg	Date/Time: 12-11-02 1430	Received By/Stored In: Wet ice Cooler #ERC02-404	Date/Time: 12-11-02 1430
Relinquished By/Removed From: cooler #ERC02-404	Date/Time: 12-12-02 0800	Received By/Stored In: R. Fuller R. Fahlberg	Date/Time: 12-12-02 1000
Relinquished By/Removed From: R. Fuller R. Fahlberg	Date/Time: 12-12-02 1000	Received By/Stored In: FedEx	Date/Time:
Relinquished By/Removed From: FedEx	Date/Time: 12/13/02	Received By/Stored In: [illegible]	Date/Time: 12/13/02 10:03 AM
Relinquished By/Removed From:	Date/Time:	Received By/Stored In:	Date/Time:

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010A (Supertrace) {Arsenic, Chromium, Lead}; Mercury - 7471 - (CV)
(2) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}

Matrix *
S=Soil
SE=Sediment
SO=Solid
SI=Sludge
W = Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
WI=Wipe
L=Liquid
V=Vegetation
X=Other

LABORATORY SECTION	Received By	Title	Date/Time	
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time	

BHI-EE-011 (03/01/2002)

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		B00-030-080	Page 2 of 2
Collector: Stankovich/Mitchell	Company Contact: Mike Stankovich	Telephone No.: 531-7620	Project Coordinator: TRENT, SJ	Price Code: 8L; Data Turnaround: 21 Days
Project Designation: 100 F Area - Full Protocol	Sampling Location: 116-F-1 Shallow Zone H2024 (7424)		SAF No.: B00-030	Air Quality ☐
Ice Chest No.: ERC 96-036	Field Logbook No.: EL-1535-8	COA: R116F12000	Method of Shipment: FedEx	
Shipped To: TMA/RECRA	Offsite Property No.: A030075		Bill of Lading/Air Bill No.: 7912 5265 6083	

POSSIBLE SAMPLE HAZARDS/REMARKS

Radioactive

Tie To B13 DVG

Special Handling and/or Storage

None

Preservation	None	Cool 4C	None	None							
Type of Container	aG	aG	P	aG							
No. of Container(s)	1	1	1	1							
Volume	250mL	125mL	1000mL	60mL							
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Chromium Hex - 7196 12-12-02	See item (2) in Special Instructions.	~~Strontium-90,99 - Total Se, Nickel-63,~~ Carbon-14	MM 1/22/03						

Sample No.	Matrix *	Sample Date	Sample Time									
J00C06	SOIL	12-11-02	0925			✓	✓					
J00C07	SOIL	12-11-02	0935			✓	✓					
J00C08	SOIL	12-11-02	0945			✓	✓					
J00C09	SOIL	12-11-02	0830			✓	✓					
J00C10	SOIL	12-11-02	0815			✓	✓					

CHAIN OF POSSESSION	Sign/Print Names	
Relinquished By/Removed From: MK Mstankovich	Date/Time: 12-11-02 1430	Received By/Stored In: R. Fahlberg	Date/Time: 12-11-02 1430
Relinquished By/Removed From: R. Fahlberg	Date/Time: 12-11-02 1430	Received By/Stored In: Wet ice Cooler # ERC 02 404	Date/Time: 12-11-02 1430
Relinquished By/Removed From: Cooler # ERC 02 404	Date/Time: 12-11-02 1000	Received By/Stored In: R. Fahlberg	Date/Time: 12-12-02 1000
Relinquished By/Removed From: R. Fahlberg	Date/Time: 12-12-02 1000	Received By/Stored In: Fed Ex	Date/Time:
Relinquished By/Removed From: Fed Ex	Date/Time: 12/13/02	Received By/Stored In: [illegible]	Date/Time: 12/13/02 10:30
Relinquished By/Removed From:	Date/Time:	Received By/Stored In:	Date/Time:

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010A (Supertrace) (Arsenic, Chromium, Lead); Mercury - 7471 - CV)
(2) Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155)

Matrix *
S=Soil
SE=Sediment
SO=Solid
SI=Sludge
W = Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
WI=Wipe
L=Liquid
V=Vegetation
X=Other

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

BHI-EE-011 (03/01/2002)

EBERLINE SERVICES **ANALYTICAL SERVICES GROUP**

Richmond, CA Laboratory

SAMPLE RECEIPT CHECKLIST

SAMPLE RECEIPT

Client: Bechtel Hanford Date/Time received 12/13/02

CoC No. B00-030-080

Container I.D. No. ER-96-036 Requested TAT (Days) 21 P.O. Received Yes [ ] No [ ]

INSPECTION

1.	Custody seals on shipping container intact?	Yes [Y]	No [ ]	N/A [ ]
2.	Custody seals on shipping container dated & signed?	Yes [Y]	No [ ]	N/A [ ]
3.	Custody seals on sample containers intact?	Yes [Y]	No [ ]	N/A [ ]
4.	Custody seals on sample containers dated & signed?	Yes [Y]	No [ ]	N/A [ ]
5.	Packing material is:	Wet [ ]	Dry [X]	
6.	Number of samples in shipping container: 10			
7.	Number of containers per sample: 2 (Or see CoC)			
8.	Paperwork agrees with samples?	Yes [Y]	No [ ]	
9.	Samples have: Tape [ ] Hazard labels [ ] Rad labels [ ] Appropriate sample labels [Y]			
10.	Samples are: In good condition [Y] Leaking [ ] Broken Container [ ] Missing [ ]			
11.	Describe any anomalies:			
13.	Was P.M. notified of any anomalies? Yes [ ] No [ ] Date			
14.	Received by Jud Davis Date: 12/13/02 Time: 10:00 AM			

Customer Sample No.	cpm	mr/hr	wipe	Customer Sample No.	cpm	mr/hr	wipe

Ion Chamber Ser. No. _____ Calibration date _____

Alpha meter Ser. No. _____ Calibration date _____

Survey Meter Ser. No. _____ Calibration date _____